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Exceptional sound
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Only in a hi-fi magazine can writers get away with recommending products with multi-digit price tags as being "excellent value for money"! The trouble is, hi-fi journalists and hi-fi enthusiasts are not one and the same thing...

I am reliably informed that most people save up money and finally buy the hi-fi they want. This process, I'm told, can take months or even years. But in the hi-fi journalist's world, this does not happen. Instead, should the scribe want something, then a simple phone call to a manufacturer saying, "do you know who I am?", usually does the trick.

This explains why hi-fi writers, whilst constantly speaking about 'value', wouldn't know it if it crawled across the room and bit them. They live in a world of hi-fi systems with telephone number price tags, go on press trips to hear the best from all around the world, and don't know the meaning of the word 'cash'.

Whilst being guilty on several of the above counts (I'm 'pleading the fifth'), I can at least appreciate that sky-high price tags don't necessarily buy you hi-fi happiness (although manufacturers would doubtless disagree). I've heard much high end, a lot of which has left me cold. There's some brilliant esoteric stuff around, but there's plenty of overpriced and over-hyped rubbish too.

That's why this issue is devoted to affordable audiophile kit. (With one exception) everything inside costs less than £1,000, and most half that or even one third. Having spent months assembling it all, several things surprised me. Firstly, the sound of some cheap separates is truly special, and secondly, almost none failed on the test bench - unlike with many of our high end special issues...

From the stunningly styled Astintrew separates (p10), to the wonderful value Rotel RCD-06/RA-04 (p18) and the budget esoterica of the Rega Apollo/Brio 3 (p20), to the technically superb new Audiolab 8000CD (p24) and bargain Usher CD-1 (p62), this issue is packed with brilliant budget buys. Enjoy!

So to McIntosh's MC275 power amplifier (p70), which weighs in at £2,650. In so many ways - sonically, technically, aesthetically - this is an amazing product. If you can't afford it, then at least there's a chance to win one if you go to the Hi-Fi World sponsored Park Inn Show (see p29). You could walk (well, stagger) away with one free, gratis and for nothing. Actually, no one will come away empty handed, as that's why this issue is devoted to affordable audiophile kit. (With one exception) everything inside costs less than £1,000, and most half that or even one third. Having spent months assembling it all, several things surprised me. Firstly, the sound of some cheap separates is truly special, and secondly, almost none failed on the test bench - unlike with many of our high end special issues...

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Reference Line

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THE CRUSADERS

An eighties classic is back, refreshed and reinvigorated. Ruark’s Crusader III loudspeaker has been made to celebrate the company’s twentieth anniversary, and sit at the top of the marque’s Heritage Series as Ruark’s new flagship transducer. The £2,800 Mk III’s implement new and improved driver technologies and construction techniques, says the maker. It’s a true three-way design, incorporating a ribbon tweeter, a 7.5cm dome midrange driver and 18cm composite carbon/pulped fibre woofer, housed in hand-crafted 25mm thick MDF enclosures critically damped with an internal non-symmetric brace system, with a contoured 25mm veneered plinth and adjustable 8mm spikes. Three standard veneers and two special finishes are offered. Ruark says the Crusader III’s efficiency and load characteristics make it suitable for a wide range of audio applications. Vital statistics are 950x230x320mm and 26kg. For more information, click on www.ruark.co.uk.

BACK HOME

After spending the past few years majoring on multichannel, it’s nice to hear that Japan’s oldest hi-fi company, Denon, has two new two channel hi-fi separates. The new 700AE Advanced Evolution Series comprises the PMA-700AE stereo hi-fi amplifier and DCD-700AE stereo CD player, both priced at £249.99. The company says that both 700AE components “offer amazing value, are incredibly well built with solid alloy fascias and heavy-weight power supplies and both deliver musical performance beyond their price class”. The 700AE CD player includes Denon’s unique AL24 processing to make all CDs sound better, has ‘Pure Direct’ mode, can play CDs with MP3 and WMA files and even has pitch control for music lessons. The 700AE amp is fully discrete, with a High Current (HC) Single Push Pull Circuit, high-speed, large-capacity power supply, audiophile-grade capacitors and a clean, straight path circuit design. Both models are available in silver or black. See www.denon.co.uk.

KIND OF BLUE

IXOS’s new XMM607 Bluetooth wireless stereo headphones (£79.99) are said to be ideal for use with iPods and any MP3, CD or DVD player. They come supplied with a dongle for cordless digital music from any player with a headphone socket, are certified to Bluetooth 1.2 specification for high quality audio playback and signal quality (radio frequency range 2.4-2.4835GHz), offer continuous playback time up to four hours and a standby time of up to 180 hours. They have an operating range of up to ten metres (in open space) and the dual-purpose power supply recharges headphones and the dongle simultaneously in three hours. For more information, click on www.ixos.co.uk.
MAGIC TOUCH
The princely sum of £999.95 buys you the Bewitch A30 Line Integrated amplifier, the result of collaboration between Days of Guangzhou Ltd and Guy Sergeant, a UK-based audio engineer formerly of Audio Innovations, JPW and Heybrook. Days of Guangzhou Ltd are principally a transformer manufacturer with twenty years of experience in the electronics industry. The amplifier features full Class A operation, three line level inputs, 30W (claimed) per channel, 4 and 8 ohm output taps, twin valve rectifiers, choke smoothing, ALPS potentiometer, SCR coupling capacitors and carbon film resistors. Russian made ElectroHarmonix 6550 output tubes are supplied as standard. The manufacturer says it sports "very substantial construction", including cast metal transformer shrouds. For further details contact Pure Sound on 01822 612449 or email pure.sound@hotmail.com.

SHOWTIME!
Anyone interested in affordable audiophile kit should make a date with fate – the London Sound & Vision Show (on the 22nd to the 24th September) is for you! With over sixty exhibitors, it's your chance to see everything that's great about real hi-fi. You'll be able to see and hear some brilliant bits of kit, many of which are featured in this august journal. The vibe is very friendly, not formal, and you'll meet countless luminaries from the UK hi-fi industry, and Hi-Fi World's very own David Price is also attending. It is held at the Park Inn Heathrow hotel, and will run for three days, the first of which is for the hi-fi trade and the other two for fully rounded human beings. As it's sponsored by Hi-Fi World, a good time is guaranteed for all – we'd really like to see you there, and will be happy to help with audio advice. For more information, please contact the show organiser Roy Bird at Chesterfield Communications 01829 740650, email roy@chestergroup.org, or click on www.chestergroup.org.

CORRECTION
The price of the AAD C-550 loudspeaker is £499 per pair, and not £900 as stated in September 2006's review. As such, this qualifies them for our full five globe rating... so congratulations are in order!

SPOTTED:
Revolver loudspeakers' talented designer Michael Jewitt in typical Cornish repose with his beautiful '65 S-type Jag. Not so much the West country's Inspector Morse as the Jason King of the English Riviera, rumour has it that Mr J has an exceedingly good £5,000 three way loudspeaker waiting in the wings, more of which next month...

TALKING RADIO
Boston Acoustics has launched a truly tiny, polar white or platinum-finished tabletop radio which perfectly matches the sleek, chic appearance of the iconic Apple iPod player. For £130, the Recepter Series II delivers a wonderful way to really appreciate your favourite downloads around the home, an exceptional tuner and a host of other natty features, says the company. For more information, click on www.bostonacoustics.co.uk.

NEW ANNIVERSARY
QED's new Silver Anniversary 'XT' biwire loudspeaker cable is described as a natural progression to the range, following last year's Silver Anniversary -XT speaker cable. The new biwire version incorporates QED's high end 'X-Tube' technology; the precise cylindrical construction of the silver-plated, 99.999% pure, oxygen free copper cables is said to reduce the distortion caused by 'skin effect'. "The result is a neutral speaker cable that allows good hi-fi and home cinema equipment to deliver their full potential", says QED. The new cable uses side-by-side 'double figure 8' arrangement with each silver-plated core visible through a flexible 3.9mm diameter clear polyethylene outer sheath. To ensure correct speaker 'phasing' the inner spacers, which maintain the cylindrical configuration of the cores, are individually colour coded. These spacers are also 'crushable' to allow straightforward crimping with 'Airloc' speaker plugs. To optimise sonic performance by keeping capacitance as low as possible, the two outer conductors carry the positive signals and the two central conductors are used for the negative (or return) signals. QED Silver Anniversary 'XT' Bi-wire speaker cable has a suggested retail price of £10 per metre, and is available now from QED dealers nationwide. For more information, click on www.qed.co.uk.
POCKET ROCKET

PURE's new PocketDAB 1500, a stylish handheld portable DAB and FM digital radio, is on sale now for £89.99. The PocketDAB 1500 builds on PURE's best selling PocketDAB 1000 radio by adding FM with RDS, textSCAN, a new colour scheme and a ChargePAK rechargeable battery pack — plus a bundled set of Sennheiser's excellent MX300 in-ear headphones (which are also used as an aerial). At just 123g PocketDAB 1500 is PURE's lightest portable to date. It sports modern, attractive styling, with black anodised aluminium casework and attractive orange backlight display with clock and status icons. With the Lithium Polymer L37 ChargePAK, PocketDAB 1500 recharges from the mains for up to 24 hours of roaming DAB playback. The radio has been designed for ease of use with a central joystick for navigation and separate controls for key functions like display settings, presets and DAB/FM. The radio automatically remembers the user's ten most listened to stations in a favourites list and has twenty presets (10 DAB and 10 FM). Stations can be ordered alphanumerically, by multiplex, by favourite and by active stations. The radio's heart is a Frontier Chorus FS1010, which incorporates a META multi-threaded processor and DAB technologies developed by Imagination Technologies' Metagence and Ensigma divisions. For more information, see www.pure.com.

MISSING IN ACTION

Purveyors of excellent quality interconnects (we know, we use them)! Missing Link have moved premises. The new gaff has a "permanent test facility, workshop, offices and demo room" — the address is 23a-25a Prest Avenue, Meden Vale, Nottingham NG20 9PQ, and the new phone number is 01623 644478.

AND THEN THERE WERE FIVE...

The latest version of the Genesis 5-series loudspeaker improves on the previous generation. "The new GS represents a change in design direction for the company," says Gary Leonard Koh, President of Genesis, "resulting in a loudspeaker that will be able to realise its potential when used in any music-lover's system." The system comprises a power amplifier, speaker cables and loudspeaker, and features a unique suspension system for the cabinet so that it can be used on the many types of flooring encountered throughout the world — including uneven natural stone tiles, granite and marble floors, deep pile carpet, and suspended wooden floors. The newly designed 8-inch woofers use a stronger motor structure, stiffer frame, and larger suspension to achieve higher sound levels with less distortion. Recessing the front tweeter has improved imaging and off axis response by reducing diffraction effects caused by cabinet interactions. Increasing the slope of the rear baffle on the head to just the right angle enhances the overall effect of the rear tweeter. This, coupled with the reworking of acoustic treatment in the midrange cavity deepens the sound stage creating a more accurate and enjoyable 'live music' listening experience. The company says that a no-compromise approach has been taken to ensure that this speaker can be incorporated into any number of situations "producing nothing less than spectacular results." The Genesis 5 loudspeaker retails for $16,000 in High Gloss Black, Titanium, and Arctic Silver. See: www.genesisloudspeakers.com.

SPOTTED:

Kulwinder Singh Rai was once a happy-go-lucky hi-fi hack, doe-eyed and innocent to the world. Then, inexplicably, he moved into hi-fi public relations, and the effects are clearly visible. Our message to other audio scribes with a penchant for PR — just say no! NEXT MONTH: Andy Giles.

SOFTWARE MACHINES

A new software tool designed to measure and display audio system dynamics in real time 3D, to a claimed resolution "never possible before", has been launched by Manic Media. Stona is said to be ideal for any audiophile who wants to accurately measure the responses and dynamics of their set up in situ. This technology is based on "revolutionary theory into the biomechanics of the ear and neural perception of sound". The algorithm at the core of Stona is said to "enable 100% accuracy in analysing audio signals in real time, and more importantly re-synthesising the signal modelled on the human ear". In this sense it is now possible to see the cochlear hairs 'firing' in real time, in response to an audio signal, Manic Media says. The software analyses any given audio signal, input by microphone or soundcard, and then plots a scrolling 3D landscape of amplitude and frequency against time, drawn in real time. The user can navigate around the 3D environment, viewing from any angle and zooming in and out, to areas of interest. Stona is priced at £39.95. By playing a test sine sweep through an audio system, and then placing a microphone in the room relative to where the user would sit, the software is said to output a precise visual representation of the performance of the system. The visual output will display any changes made to the audio system, such as level changes, component changes and of course speaker placement within the room. A five day free trial version is available for download at www.manic.co.uk. For more information, you can click on www.darkmatteraudio.co.uk.
ASTINtrew is a new startup company making stylish yet affordable hi-fi separates. Channa Vithanna enjoys its idiosyncratic first system...

Trew Faith

Currently, for obvious economic reasons, it isn't often that a new hi-fi company is formed here in the UK. But ASTINtrew is one such rarity and is an interesting manufacturer because, firstly, they have an entire system from the outset, consisting of preamplifier, power amplifier and CD player, unlike some who can only afford to bring out just the one product, like an amplifier for instance. Indeed, ASTINtrew also have an AT6000 Clean Power Distributor unit for the mains, AT2000 integrated amplifier, plus a loudspeaker and cables out soon. Secondly, the superb design and build opposes the startup trend by definitely not being 'hair shirt'.

The man behind it all is Michael Osborn, who is experienced in product design and engineering. He started ASTINtrew in 2004 and worked with an audio engineer in the UK to develop the electronics, while he designed the casework. So, why start a hi-fi company now? Michael states, "I felt there was a niche in the 'audiophile' market for a well priced entry-level product range with good sound and good looks. I also believed that the 'iPod generation' need to be brought back to the joys of listening to quality sound in the home; this is why I have offered an MP3 input on the facia, along with both 6.3 and 3.5mm headphone/(in-ear) sockets."

While designed and engineered in the UK, the manufacturing takes place in China. Michael says that, "from the outset, it was clear that manufacturing in the UK was a non-starter at the price band I was wishing to manufacture within. Manufacturing in the Far East has cost benefits, but managing potential (or real) problems is of course much harder from over here. (However) having a local engineer on my staff to resolve any production issues is very useful".

The system we have for review consists of the (£495) AT1000 preamplifier, (£645) AT5000 power amplifier and (£599) AT3000 CD player. The AT1000 preamplifier uses a Burr Brown PGA2311 resistor network volume control chip (and flywheel type dial) in favour of the
more traditional motorised Alps Blue volume potentiometer. Internally, for the power supply, the AT1000 uses a screened toroidal transformer with isolated power supplies for better sound. ASTINtrew says they, "chose to develop the valve line level stage using the ECC82 valve (one per channel) for a number of reasons. It is thought to be less microphonic than the alternatives and the Electro-Harmonix valves we use give a good balanced sound, unlike some other brands we tried. We are also fitting mechanical valve dampers on all valves. It does tighten up the sound and add to the imaging and is a good value addition. (Additionally) polypropylene input/output capacitors (are) used for the best sound at the price."

For the headphone outputs ASTINtrew say, "Rather than use a cheap chip-based amplifier for the headphones, we wanted to offer a better sound. Our simple but neat single-ended Class A design does this well, then think. The AT1000 has a boxed weight of 9.1 kg. It has an IEC mains socket at the rear, is fully remote controlled, supplied with a system remote with adjustable display brightness and six line inputs including tape and MP3.

The AT5000 power amplifier is a particularly unusual single-ended dual mono design with valves in the power supply. "Dual mono design is the best way we know of producing an articulate stereo image. A dual wound single toroidal will always be inferior unless manufactured to a very high and costly specification. The two (overrated) 300VA toroidal transformers we use offer both channel isolation with plentiful dynamic headroom and bass control. The amplifier is a single-ended MOSFET design with some novel features. The signal paths are short and go through a small number of components, with short PCB tracks. The power supply is so important and in amplifiers in this price range, is where savings are often made. Our design does not skimp in this area. We have used Schottky diodes and multiple medium value electrolytic power capacitors along with some smaller values, offering an impressive 44 joule power capacity per channel. The design uses an ECC82 valve (one per channel) on the power supply side, providing a constant current low impedance load, as required in the design, it also acts as isolation from supply line variations and 'noise'. This is, as far as we know, a quite novel approach", adds Michael Osborne.

At the rear panel, the AT5000 features two sets of loudspeaker binding posts, phone socket inputs and an IEC mains input socket. It has a claimed 50W/8ohms or 95W/4ohms power output and a boxed weight of 15.5kg.

The (£599) AT3000 CD player is distinctive in that it uses a Phillips VAM1202 transport (and CD711 servo). The transport is isolated from the main casework by being mounted on a 4mm thick aluminium base plate, with compliant anti-resonance dampers between it and the plate. In operation, the transport is quiet and its disc-loading drawer glides in and out smoothly with low noise. The AT3000 uses a Burr Brown PCM1738 DAC. For the power supply, a 'C core' transformer has been used, which ASTINtrew says provides "separate power supplies for each section, (also) high quality electrolytic capacitors (are) used throughout (with) polypropylene input and output capacitors."

For the electronic design, ASTINtrew says, "a hybrid valve buffer output circuit for the AT 3000 was developed using the ECC88 double triode valve, selected for its exceptional linearity. We have selected the Golden Dragon valve as being the most dynamic and cleanest sounding production valve we have listened to in this circuit. Valve buffers, in our experience, make CD players sound more analogue-like and represent a good "pound for sound" option in a player at this price point."

The AT3000 has a selectable upsampling feature, indicated by an LED, on the front panel which is labelled 24 bit/ 96kHz. The display is adjustable and a full system remote is included. At the rear panel, there is a single coaxial digital output, IEC mains input socket and a set of analogue output phono sockets. The AT 3000 has a boxed weight of 9.1 kg.

The casework, featuring flush-mounted hex-head fixings, uses attractively designed and gently angled aluminium panels with finely crafted heatsinks. The design reminds me of a sleeker, more resolved version of the ones used by Alchemist from the nineties. Each unit measures 430x340x110mm and the finish and build quality is very good for the asking price as the gunmetal/titanium finish is superb.

**SOUND QUALITY**

Kicking off with the AT3000 CD player, and I actually preferred it minus upsampling, because the sound had slightly more vitality. The rhythms from the cello, violin and viola of the Balanescu Quartet from their "Maria T" release were reproduced with a surprisingly high resolution sound for the asking price. The timbre of the violins, for example, was excellent; they sounded well defined "instrumental resolution was superb - the music was communicative and convincing..."
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Buchanan's longingly melancholic vocals. Both vocals and instruments had excellent definition, texture and resolution - and when the wonderful gospel break arrived, the ASTINtrew system was able to control this extra level of vocal texture and dynamics with ease, without stifling its communicative ability.

The angular and asymmetrically arranged electronic music of 'Windowlicker' by Aphex Twin was handled with confidence and - impressively for the price - a very revealing quality that extracted and opened out the many layers to this piece. Bass was nicely extended and tuneful, which powered the rhythms for this sophisticated piece of electronics with cohesion.

When I compared the (£1,140) combination of the AT1000 preamplifier and AT5000 power amplifier to my more expensive reference, the (£1,595) Moon i-3, integrated using the AT3000 CD player, I found the Moon had slightly superior instrumental resolution with the Balanescu Quartet. Also the Moon just had the edge on timing, with a finer ability to reveal the Moon just had the edge on with the Balanescu Quartet. But it was very close. On the Carpenters recording, the Unico had more resolution but was less good at instrumental separation. Conversely, The Blue Nile recording had superior instrumental and vocal resolution via the ASTINtrew while the music sounded more diffuse and less well defined with the more expensive Unico.

CONCLUSION

Surprises all round, then, at what this very individual and characterful 'clean sheet' designed ASTINtrew system managed to achieve. (The £495 AT1000 preamplifier, (£645) AT5000 power amplifier and (£599) AT3000 CD player offered a generally clear and open window into all the music. Correctly matched with sensitive speakers, the AT1000 preamplifier/AT5000 power amplifier combination proved more than capable of scrutinised comparison with my more expensive Moon Audio i-3 integrated.

One downside of the ASTINtrew pre-power combo was the power amplifier's behaviour at full output [see MEASURED PERFORMANCE]. In practice, at sensible volumes via my reference Waterfall loudspeakers, the inability of the ASTINtrew to deliver full power uniformly across the full frequency band didn't show itself, and the amplifier actually proved a most beguiling and musical performer - but the same cannot be expected at very high volumes, or with less efficient speakers. As such, we'd recommend you partner the AT5000 with efficient loudspeakers such as Revel's R45.

Comparing the £599 AT3000 CD player to the £1,250 Unico CD at approximately twice the cost showed that the Unico had slightly more resolution and timbral depth to the cello, viola and violins with the Balanescu Quartet, but it was very close. On the Carpenters recording, the Unico had more resolution but was less good at instrumental separation. Conversely, The Blue Nile recording had superior instrumental and vocal resolution via the ASTINtrew while the music sounded more diffuse and less well defined with the more expensive Unico.

MEASURED PERFORMANCE

The chunky AT 5000 power amplifier produces a modest 45W into 8ohms, rising to 72W into 6ohms, less than expected considering size and weight. Distortion levels and spectra looked good in the midband but deteriorated significantly at high frequencies. The AT5000 had a problem here, as it would not swing full output at 10kHz on either channel. It managed around 25W maximum (10W) into 8ohms before severe waveform distortion (greater than 3%) set in. At 1W output the amplifier's output distorted badly above about 25kHz too, a performance easily bettered these days. If it isn't run hard the AT5000 power amplifier gives good results, but not when pushed. It will give a rough or coarse sound at high volume, as the distortion spectrum was extended and severe. The circuit uses J162/ K1058 complementary MOSFETs in push-pull, used by Elektor back in 1984 in their Crescendo amplifier.

The AT5000 preamplifier/AT5000 power amplifier combination proved more than capable of scrutinised comparison with my more expensive Moon Audio i-3 integrated. ItPerformers had more spatiality and finer instrumental and vocal resolution via the ASTINtrew while the music sounded more diffuse and less well defined with the more expensive Unico.

AGAINT

- power amp matching issues

VERDICT

This unusual combo sounds great at the price if matched with efficient speakers - with a musical and explicit sound - but won't work in everyone's system.

ASTINtrew AT3000 £599
ASTINtrew AT1000 £495
ASTINtrew AT5000 £645
ASTINtrew C+4 (01)-91 414 994
www.astinrew.co.uk

FOR

- clear, enveloping sound
- fine instrumental separation
- design, build and value

AGAINST

- power amp matching issues

REFERENCES

Unison Research Unico CD player (£1,250)
Moon Audio i-3 integrated amplifier (£1,595)
Waterfall Victoria loudspeakers (£2,000)

MUSIC

Balanescu Quartet, 'Maria T' (2005)
The Blue Nile, 'Peace At Last' (1996)
Aphex Twin, 'Windowlicker' (1999)

www.hi-fiworld.co.uk
"A little champ of price/quality ratio: available at an affordable price, especially for a tube amplifier of more-than-usual power."

AUDIO REVIEW Italy July 2004, Claudio Checchi

"PrimaLuna ProLogue One is now my affordable reference amplifier. With apologies to various British and Italian geniuses, this amplifier has to my ears—no equals at its retail price."

Hi-Fi NEWS and record review, July 2004, Ken Kessler

"A refreshing change from the transistor competition with a captivating presentation. Excellent finish and build quality makes for a package strong on value."

Hi-Fi WORLD, August 2004, Dominic Todd

Music is a pleasure not to be denied. So, too, the beauty of music reproduced by valves should be accessible to all. To make available to a wider audience the seductive, silky sound of the vacuum tube, PrimaLuna has developed a range of all-valve amplifiers with the construction, power and sonic performance of high-end electronics, but with one unique, inimitable feature: prices that can only be described as 'entry level'!

Since the arrival of the Prologue One, the audio community has been unable to contain its joy nor reign in its praise because PrimaLuna has revolutionised the concept of 'affordable audio.' With a pair of integrated amplifiers with prices more typical of mundane, solid-state products, PrimaLuna showed other manufacturers that compromises in fit and finish, styling and facilities are unnecessary.

Now PrimaLuna can offer the pride of ownership of true separates to aficionados on a budget. As promised, PrimaLuna has expanded the range upward with three exciting new models for users whose requirements demand separates rather than integrated amplifiers.

To meet these needs, the music lover can now consider the Prologue 3 dual-mono valve preamplifier with four line level inputs, and a choice of two matching stereo power amplifiers. The Prologue 4 provides 35W/channel from EL34 valves, while the Prologue 5 delivers 40W/channel courtesy of the classic KT88 tube.

And there's more good news: PrimaLuna has also announced retro-fittable auto bias boards for the Prologue 1 and 2, and a moving-magnet phono stage for the Prologues 1, 2 and 3. Additionally, there is now a choice of optional gold or silver front panels in place of the standard finish.

Audition the full range of Prologue models at the Pistol Music dealer of your choice. And prepare your wallet for a pleasant surprise.
Who'd have thought it? After years of languishing in the doldrums behind the glitz of AV systems and high end hi-fi, low priced, 'rough and ready' separates are back on the map. Channa Vithana auditions three brand new entry level separates systems from Tangent, Rotel and Rega...

Contrary to the belief held by your average pampered, ivory tower inhabiting hi-fi hack, the most important section of the retail market is budget separates. Whilst most audio journalists may spend hours deliberating over whether a £14,000 CD spinner is better than their £8,000 reference, many hi-fi buyers worry about whether they should buy a £329 one rather than a £299 one.

Budget separates are vital to this hi-fi world of ours. They're for those who've got an iPod and want it to go louder than the week-kneed 'Speakers' they've been using for the past year. They're for those who've suffered a mid nineties micro system for too long. They're for those who've spent too long with old, out-of-date separates that are beginning to give up the ghost. And last but not least, they're for those already owning well matched, finely tuned separates systems who want to upgrade and simply don't concede the need to spend four figure sums, whatever us magazine journalists may say...

With this in mind, it's disappointing how few manufacturers have taken 'the fight' to this end of the market. We have NAD and Cambridge Audio, plus a few lesser Marantz separates — but until recently that was pretty much it. Now though, three names have come back into the fray with totally new or revised systems — Tangent, Rotel and Rega. The former is an offspring of Danish based speaker moguls Eltax, the Rotels are completely reworked versions of their previous excellent range, and the Regas the same.

Regarding the latter, if Rega's experience is anything to go by, the budget separates area is far more fiercely fought than many hi-fi writers, languishing with telephone number price tag systems, might imagine. Rega told Hi-Fi World that, "If someone had said to us, prior to launch, that the new Apollo CD player's sales would outstrip the number that its predecessor the Planet sold in the early days some six years back, then frankly we'd have laughed...Well it has, and it's been lovely to prove wrong all those who told us affordable hi-fi was dead."

DP

REFERENCE SYSTEM:
Origin Live Resolution/ Ultra+ / Encounter MKII turntable (£3,740)
Sumiko Blue Point Special EVO III cartridge (£235 approx.)
Cambridge Audio 540P MM phonostage (£40)
Moon Audio i-3 amplifier (£1,595)
Waterfall Victoria loudspeakers (£2,000)
Spendor S9e loudspeakers (£2,995)

MUSIC:
Kate Bush, 'The Red Shoes' (1993)
The Tea Party, 'Splendor Solis' (1993)
William Orbit, 'Barber's Adagio For Strings' (1999)
Tangent is part of the Danish brand Eltax who are known for their low cost loudspeakers and A/V components. Latterly Eltax has been sold in the UK by Richer Sounds. Indeed Richer Sounds are currently advertising the AMP-100 and CDP-100 for approximately £99 each, which is even cheaper than the estimated RRP conversion price from Euros to Pounds Sterling, where the AMP-100 works out at about £136 and CDP-100 is roughly £122! The AMP-100 and CDP-100 are very stylishly designed at their respective prices, with both featuring the type of aluminium panels and finish that accompany more costly designs in the way they look. Consequently, the look is clean, with a sleek low-slung stance that sets the Tangents apart from the typically plasticky fare at this price.

Somewhat unhelpful though is that they both use figure-eight mains sockets at the rear, which are the usual domain of low-cost DVD players. And as such, this makes the use of better aftermarket mains cables for superior sound quality trickier. Why I mention the mains cables is that, as you can read later, they need all the help they can get. Ostensibly, I prefer the AMP-100 design to the more expensive (£200) Cambridge Audio Azure S40A design for instance, as its buttons are more discrete, while the Cambridge, though utilising superior build quality, still uses those ugly oval knobs which look like leftovers from their previous generation of hi-fi.

The fully remote controlled AMP-100 is surprisingly well specified for its price with six line inputs (though no input labelled tape or recorder), a useful stereo line out for subwoofer/other amplifiers, headphone socket and MM (Moving Magnet with 47kohm impedance) phonostage plus phono-ground connector. As is typical with some ultra budget hi-fi, there are bass, treble and loudness adjustments. Bass and treble are adjustable through very neat pop-in/out knobs, with a claimed +/-14dB range, either side of the multifunction volume control. Balance and loudness are adjustable via a combination of the function and volume controls. In use the tone controls did offer a superficial lift to the music, which seemed helpful, but ultimately they just squashed dynamics and made the sound more compressed. The display on the AMP-100 is very good in that it presents the various settings you can choose but it only works properly if you look at it straight ahead.

Internally, the AMP-100 uses a toroidal transformer for its power supply and the claimed power output is 40W/8ohm and 50W/4ohm. It measures 430x290x75mm. The CDP-100 is a sleek design that measures 430x290x60mm and interestingly uses a rotating knob, with similar action to the AMP-100 volume control, to scan through a CD. This feature makes it look more symmetrical with the AMP-100 and matching DAB-I00 tuner, which also uses a rotary knob. The disc loading drawer operates with a solid and relatively silent action and the transport inside is able to read MP3 discs. However, its slimline proportions and lack of machined finger grooves makes removing discs problematic, while it is also quite flimsy so care needs to be taken when inserting or removing a disc. Unusually, the CDP-100 does not feature any digital outputs to its rear panel for digital recording and this also negates any form of upgrading with an external DAC, which is precisely how a budget design like this could be improved.

**SOUND QUALITY**

Of course, the Tangents are spectacularly cheap — many Hi-Fi World readers wouldn’t blanche at spending this system’s total price on an interconnect — so it’s important to note that the AMP-100 and CDP-100 are “a pure, unreconstructed hi-fi bargain; some people spend more on a Beethoven box set!”
to remember their modest position in the hi-fi cosmos. Even so, I was less impressed with some aspects of the performance that I’d expected, with the culprit being the CD player; in isolation, the AMP-100 actually worked very well at the price.

There were adequate levels of detail with the Sibelius & Nielsen/Cho-Liang Lin ‘Violin Concerto’. Here the elements of the recording were clearly reproduced with reasonable instrumental separation. Violin timbre was good with decent communicative ability to bring it out into the room. Dynamic horn crescendos were handled fairly well with acceptably clear extension. There was however quite discernable veiling and dynamic compression with the other instruments when more complex passages appeared. What this did was to make the complete sound seem much smaller; and it was also harder to follow the music. Interestingly and incongruously the Tangents had decent timing with the violin phrasing, but unfortunately not much substance to back it up. ‘Rubberband Girl’, from ‘The Red Shoes’ by Kate Bush had a good rhythmic flow to it, with adequate arrangements were clear and quite well defined while the vocals were acceptable.

The six and a half minute Ferry Corsten remix of William Orbit’s version of ‘Barber’s Adagio For Strings’ had good instrumental/sample separation, and a decent level of spatiality and ‘effects steering’ as individual samples/tracks within the remix zoomed quickly from left to right. Here the high frequencies were listenable, but bass extension and tunefulness flabby and distended at my moderate listening levels. This was the only piece of music however, with the Tangents, where their unevenness (in this case the bass) did not prevent me from listening to the whole of it.

I switched listening rooms and systems to test the onboard phonostage of the Tangent AMP-100. I swapped the unforgiving (£2,000) Waterfall Victoria loudspeakers and used high-end (£2,995) Spendor S9e models (which are very forgiving by nature and always tend to flatter their source) and my reference (£3,740) Origin Live Resolution vinyl set-up with a Sumiko Blue Point Special EVO III high output MC cartridge (which has a 47kohm loading, the same as many MM cartridges). I was expecting the AMP-100 to melt under the demands of the Spendors but, even though the volume control had to be run higher, the Tangent and its internal phonostage was surprisingly listenable!

The Spendors, although more of a demanding load, are more forgiving than my lower-cost Waterfall Victorias and the music from ‘It Will Always Be’ by Willie Nelson had a nice lyrical quality with a generally well balanced and communicative sound for the price. The country/bluegrass sound of the slide steel was, however, ever so slightly strident. And while performing much better without the accompanying CDP-100 CD player, the AMP-100 was still showing its budget origins in reference terms against the (three times more costly) Rega Brio 3. Thus within the same song where they could extend vocals one moment and then go into stridency the next with guitars or the same vocal. They fared better with the simpler arrangements within songs such as the folk opening to ‘Midsummer Day’ by The Tea Party and solo violin parts. Of the two, the AMP-100 integrated is much better than its partnering CDP-100 CD player and with its onboard phonostage proved quite listenable for its price. It is also well specified with full remote, adjustable tone controls and a MM phonostage. As such, by itself we’d award the AMP-100 four stars plus a one-note. Kate Bush’s vocals were also fine. However, as the music progressed and became more complex the high-frequency stridency returned and guitar solos were rather uncomfortable with some harshness and congestion. The opening acoustic folk of ‘Midsummer Day’ fared much better, where the more sparse and simplistic

GROUP TEST

TANGENT AUDIO AMP-100
(APPROX.) £136
TANGENT AUDIO CDP-100
(APPROX.) £122
Tangent Audio
(C)©+45 96 41 15 00
www.tangent-audio.com

FOR
- stylish design
- adequate starter phonostage
- great value

AGAINST
- thin, uneven sound
- CD player build

CONCLUSION

The Tangent Audio combination of AMP-100 amplifier and CDP-100 CD player at approximately only £258 for the pair (even cheaper at Richer Sounds) are stylish affordable separates. They look far sleeker than the more expensive Cambridge Audio Azur series; however, at this lowly price you can’t expect the fine build quality of the Cameridges. As a whole, the Tangent duo did not sound particularly convincing with all the music used. They were rather uneven, where detail levels were generally good and some elements of instrumental separation also. High frequencies were somewhat variable, levels of instrumental separation. However, bass extension and tunefulness was somewhat diffuse and ‘one-note’. Kate Bush’s vocals had decent clarity and extension but sounded strident with high frequency harshness dominating the music while masking the instruments behind it.

The Tangents were - considering the previous two pieces of music - acceptably listenable with the opening bass lines with ‘The River’ from ‘Splendor Solis’ by The Tea Party. There was a good dynamic flow with the drum track while the vocals were also fine. However, as the music progressed and became more complex the high-frequency stridency returned and guitar solos were rather uncomfortable with some harshness and congestion. The opening acoustic folk of ‘Midsummer Day’ fared much better, where the more sparse and simplistic

www.hi-fiworld.co.uk OCTOBER 2006 HI-FI WORLD 17
Rotel has been distributed in Britain by loudspeaker manufacturer B&W for over twenty years. B&W says that this Japanese manufacturer is a "forty five year-old family business run by Bob Tachikawa, son of the founder who is still active in the company today." The Rotel design and manufacturing process is an exhaustive one and as such, they say "specifications and outline design is carried out in the UK, this is then taken up by designers and engineering staff based in Japan. From all this a product is made and sent to Rotel Europe (based here in B&W Group Worthing) for 'tweaking' and finalising. The tweaking process is an important part of the process and will determine the aural performance of the product. It is a painstaking process of aurally checking a wide range of components on a one-by-one basis in the signal handling stages of a product; (it is doubtful) if any other manufacturer goes to these lengths to optimise performance."

The £250 RA-04 is a new amplifier which resembles the previous RA-01 integrated in appearance and price as well. Rotel says of the RA-04 that "whilst it shares the basic layout with the earlier RA-01, every op-amp and passive component to do with the signal path has been re-evaluated and revised." Like the RA-01, the RA-04 does not come with a remote. For this, there is the RA-05 which costs £100 more. However, the RA-04 does have an MM (Moving Magnet) phono input (with a 47kohm loading) which is very useful and on the front panel a 3.5mm 'Media Player' input for portable MP3/iPod devices along with a headphone socket.

As a combination, the Rotels were sublime with the Sibelius & Nielsen/Cho-Liang Lin 'Violin Concertos'.
out of sight. The RCD-06 measures 437x73x313mm, and both the RA-04 and RCD-06 come in black or silver finishes.

**SOUND QUALITY**

As might be expected perhaps, the background to the music from the Sibelius & Nielsen/Cho-Liang Lin ‘Violin Concertos’ was very quiet compared to the ultra low cost Tangent system. There was very little ‘noise’ to the instruments and this helped to provide a clean and unconstrained canvas for the violin and orchestra. The former had excellent body, showing depth, power and texture. There was real and tangible emotion via these Rotels, unexpected at this price level. The phrasing of the violin was excellent and its accompanying timbral body meant that I could follow it throughout the overall composition. The orchestrations had power, depth and rhythmical acuity that provided tangible levels of depth, texture and control. There was good spatiality to the music, which enabled a nicely rhythmic flow to the bass, drums and guitar parts. Jeff Martin’s vocals were expressive, showing a good range of tonal colour and texture. His singing was well placed within the mix and was comfortably discernible as a result, being neither forward nor recessed.

The six and a half minute remix of William Orbit’s version of ‘Barber’s Adagio For Strings’ by Ferry Corsten showed the Rotel CD player to have superb timing considering its lowly price. The sound was exhilarating and propulsive, basslines were tight, tuneful and rhythmically engrossing while the electronic sounding string parts were clear and well defined. As the main melodic parts massed, there was a wonderful sense of effortless control and drive from the RA-04 amplifier with an enjoyable neutrality to the whole sound.

Moving to my smaller 4x3m listening room, in which a pair of (£2,995) Spendor S9e loudspeakers and a (£3,740) Origin Live Resolution turntable fitted with a Sumiko Blue Point Special EVO III high-output MC cartridge reside, I was able to assess the MM input on the RA-04. Impressively for this budget integrated amplifier, there was much less of an improvement than when I assessed the cheaper Tangent Audio AMP-100, as I substituted its internal phonostage for a low-cost but very high quality (£40) Cambridge Audio 540P MM phonostage through its CD input. The 540P did offer an improvement though, and it was primarily in timbral resolution to the instruments and vocals from Willie Nelson’s ‘It Will Always Be LP, where they gained in conviction and tangibility. The second set of improvements came with better spatiality to allow the instruments and vocals to breathe and be expressed. The upgrade in sound quality was small, but still discernible.

**CONCLUSION**

Offering superb value for money, the Rotel pairing of RA-04 amplifier and RCD-06 CD player are a superb match for the asking price of only £600. The RA-04 is an excellent amplifier with fantastic real world loudspeaker driving ability, being able to control and power the demanding (£2,995) Spendor S9e and the more unforgiving, (£2,000) Waterfall Victoria loudspeakers without dynamic constraint or loss of composure on difficult or complex instrumental and vocal parts.

As a combination, the Rotels were sublime with the Sibelius & Nielsen/Cho-Liang Lin ‘Violin Concertos’. Here they revealed a level of emotional tangibility to the phrasing of the violin that completely belied their budget pricing. The Rotels were convincing in their ability to reproduce texture, resolution, timing and space around the violin. The orchestrations were no less well revealed and the cellos had deep and powerful timbre when they were played in rhythmic swathes across the musical canvas. They were also very good with all the other music used, remaining never less than musical with generally good timing. Here I could follow the rhythm, beat or melody with ease, making it very easy to enjoy music.

Some may bemoan the RA-04 amplifier’s lack of remote control, but at £250 it is fantastic in respect of build and sonics. Also, as a pair I think the RA-04 and RCD-06 look superb, with their slimline casework, unpretentious yet clean styling and excellent build quality. Of course, we applauded Tangent for attempting the impossible and offering real hi-fi for next-to-nothing, but here with this Rotel system is where things really start to get serious.
The £328 Rega Brio 3 amplifier and £498 Apollo CD player use attractively stylish casework (available in black or silver) designed by Rega's Colin Dilliway, utilising gently-curved 3mm extruded aluminium sections. The Brio 3 integrated amplifier is claimed as an improved version over its predecessor. The 170VA rated toroidal transformer and power supply are upgraded versions for better sound quality. Consequently, the power output has risen from a claimed 38W/8ohms to 49W/8ohms and from 53.5W/4ohms to 64W/4ohms. It uses an Alps volume potentiometer and its internal line/preamplifier philosophy and component choice is refreshingly simple in its description as being "no nonsense, with a high quality, no compromise circuit with no electrolytics, only polyester caps in the signal path." For non-Rega tonearms I would have preferred Rega to supply a proper, easy to undo grounding screw for the internal phonostage though, as you have to loosen one of the chassis screws (marked with a label) with a screwdriver at the rear panel and then re-tighten it once the grounding cable is secured!

The £498 Apollo CD player is the replacement for the Planet 2000, which in my view was a superb visual design success, as well as one of the best sub £1,000 designs when launched. It is impressive that Rega have kept the price the same for the Apollo after approximately six years since the introduction of the Planet 2000. The Apollo also now comes with a remote as standard where as it was a £25 'Solar' option with the Planet 2000. Visually it looks very similar to the Planet 2000 in that it is a rare budget priced CD player with a top loading transport and slick operating lid. It would be nice if Rega offers a cost option for Apollo customers to allow retro-fitting of the solid aluminium fascia as used and Rega says, it is "a high quality three point mounting ball chuck. This type of design has several advantages over the magnetic puck type design. Firstly, and most importantly it presents the disc as horizontally as possible to the laser spot, directly resulting in improved reading of the information on the disc. Secondly, there is no wear and tear to the disc from a puck magnet. Thirdly, the mass of the puck is lost completely giving the mech itself less stress and better acceleration and braking performance."[So one wonders why Rega originally used a puck system if it had all those drawbacks? Seems to me that it smacks of 'needs must'; it's the best mech Rega can get at the price right now, and it happens not to have a puck this time! Ed.]

The Apollo is said to use a totally new CD operating system, processing and IC refinements. Rega say,"we believe we are now ten years ahead of the design of other CD operational software" (there's more information on this technology at www.rega.co.uk). The Apollo uses a Sanyo transport and Wolfson 8740 delta-sigma integrated DAC. Its power supply is in two parts,"one for (the) digital section and motors, using as highly rated
components as possible, given the price. The other is for (the) analogue section (using) separate windings from main transformer. This is designed to complement the Class A output stage.” The Apollo measures 435x100x270mm.

**SOUND QUALITY**

The Rega system had even quieter perceived background noise levels than the Rotels before, instantly justifying its price premium. The sound from the Sibelius & Nielsen/Cho-Liang Lin ‘Violin Concertos’ recording was very clean in comparison to the other two systems. Violin was reproduced with excellent resolution and communicative ability, instrumental separation was excellent and the orchestrations were dynamic and clear, while the loud crescendos were handled with aplomb. The Rotel system in comparison was a little more free-flowing with a very slight lead in timing also. The Rotel had superior timbre and dimensionality to the violins and cello, yet although the Regas didn’t struggle in this respect, they had a more measured, clean yet rhythmically astute sound. The Regas had excellent instrumental intelligibility, meaning that they were able to go into the heart of the ‘Violin Concerto’, into its very structure to create an even-handed and uncoloured sound.

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conclusion

As with many Hi-Fi World group tests, we have not lined up identically priced bits of kit. Rather, we've done a sweep of the sub-£1,000 system market, with three of the best new entries. As such, the globe ratings aren't a strict measure of a system's sound quality in relation to each other, but we - as ever - assess their ratings in terms of where they are compared to the best at their own price points.

We congratulate Tangent on a solid new range, but it's a shame (for them) that we didn't review the AMP-100 integrated in isolation, as it's a worthwhile and capable machine for the money. Trouble is, we're less convinced by its stablemate CDP-100 CD spinner. The AMP-100's integral phonostage makes it better value still, and so the only thing that blots its copybook is that if you spend twice as much, you can get a lot more quality elsewhere.

If cash really is that tight, go for the Tangent, but if you can stay away from your local hostelry for a week or two, the money saved would be well spent on the Cambridge Audio 640A, or better still the Rotel or Rega reviewed here.

As a system then, I could not for most of the music used get on with the Tangents as a duo, and the CDP-100 CD player is the guilty party. Together they sounded shrill and strained when more complex parts of music appeared, while being only acceptably mediocre with more simple arrangements. Even for their obviously very low price, as a pair I cannot recommend them on sound quality terms. If you must have the Tangent twosome, then use warm and smooth sounding cables with a rolled off treble.

Conversely, the new Rotel RA-04 amplifier and RCD-06 CD player at £600 are superb value for money and I can thoroughly recommend them. The Rotels have sleek and low-slung casework, excellent build quality and equally superb sonics. I found them particularly good with the Sibelius & Nielsen/Cho-Liang Lin 'Violin Concertos', where they completely excelled by being the best of the group at revealing and reproducing the violin and orchestrations with a free-flowing, highly textured and vivid distinction that made this type of music come to life in all its three-dimensions. So, fans of primarily classical music who don't want to spend a lot of money can audition the Rotels with confidence, and likely choose them over even the pricier Rega combination. Overall, it's an absolutely superb twosome, the only problem being the redoubtable quality of the slightly pricier Regas...

Although not quite as lyrical as the Rotels with the 'Violin Concertos', the Rega pair was exceptionally musically communicative on every type of programme material used. It's for this reason that they've got the remarkable five globes and pound sign rating. Few, if any, hi-fi separates do so much for so little [if at all - Ed.], and the Rega system's musical lucidity is totally out of proportion to its price. I think much of the Rega Brio 3's lush, fluid character is explained by the fact that renowned valve nut Terry Bateman designed it — Ed. — I was surprised at how consistently good the Regas were in being highly revealing, propulsive and engaging all at the same time.

At £826 for both components, the Regas cost £226 more than the Rotels, so the sonic superiority with the majority of the music is entirely logical, but I don't automatically go for the most expensive equipment as the best (quite the opposite in some reviews), but for this group test, if I was faced with a choice between the Rotels or the Regas, I would go for the Rega pairing because from my findings, they are definitely worth the extra outlay. Partner them to a pair of Q Acoustics 1020 bookshelf speakers (£130), for example, and it's one of the best ways to spend a thousand pounds yet invented. Rega has always been an eccentric - and some would say anarchic - company, and here's proof that their attitude pays off.

www.hi-fiworld.co.uk
Once upon a time, a great British brand that sold very strongly until the mid-nineties was bought by a prestigious company, languished thanks to overpriced and inappropriate products, and was then bought by a Chinese manufacturer for a song. But that's enough about Rover...

Audiolab, just in case you didn't know, was also a once-great British brand, one which completely caught the eighties hi-fi zeitgeist. It was well made, reliable, came in an attractive shade of eighties-tastic black, and was affordably priced too. Although never the best in the class, Audiolabs were always a fine package and filled their sensible shoe-wearing owners with real pride.

In the mid nineties, the company was sold by its owner Philip Swift for a tidy sum to new audio start-up TAG McLaren Hi-Fi. Phil went on to take over the helm at Spendor (very successfully) and Udo Zucker, the new TMH supremo was thrown into the spotlight. Udo's charismatic stewardship was controversial to say the least. He ditched the Audiolab brand name, upped the prices, added a fancy volume knob, a splash of McLaren's nineties-tastic charcoal grey paint and took the brand upmarket.

Not everyone was convinced; 'new boots and panties' for a mid-fi brand did not — in many audiophiles' minds — constitute high end. Whilst some of the new products TMH introduced were truly impressive, much of the two-channel stuff was widely (and rightly) regarded as 'off the pace' by the early noughties. It was a classic case of trying to take a brand upmarket and failing, because there's a whole different set of imperatives operating.

When Taiwan-based IAG (International Audio Group) bought TAG McLaren Hi-Fi in 2003, they ended up with a load of mid-nineties intellectual property and a factory which perhaps they didn't need. The latter was sold to Meridian, and the former (rather like what the new owners of Rover cars are now doing, it seems) were lightly tweaked and relaunched under another brand, with a coat of noughties-tastic silver paint, at about half the price.

Such a dramatic price drop was possible thanks to the transfer of manufacturing to Shenzhen in Southern China, to the very same massive factory that makes Quad electronics and electrostatics, and Wharfedale loudspeakers. Considering that TAG McLaren's electronics factory — the very same facility that does the Formula One racing car circuitry — was suffering those same boards just a few years back, you can imagine the difference in build cost! The Chinese-built Audiolabs would be a fraction of the price of the TAG stuff to make, but the sixty four thousand dollar question was — would the quality be the same?

Well, you might be surprised by this, but the answer is yes. Having had the chance to compare a Huntingdon-built TAG McLaren 8000S amplifier with its Shenzhen-built Audiolab spawn in the IAG factory last August, I can confidently state that to the touch and to the eye, the Chinese stuff is as good - if not better. There was absolutely nothing to let the Chinese one down, and if anything the quality of the metalwork and paint was superior.

Audiolab are reintroducing all the old favourites, complete with all their TAG McLaren board upgrades, bar the 8000A amplifier as IAG considered it uncompetitive at the price. This means we see the 8000S integrated amplifier, 8000Q preamplifier, 8000M monoblocks and 8000P stereo power amplifier, plus a couple of new products too — the most interesting of which is the 8000CD you see here, which is virtually a 'clean sheet' design for just £600.

Whilst, say Audiolab, its old amplifiers are still able to cut the
mustard today (albeit at a reduced price), the 8000CD of yore was not. The result is a completely new machine, with that same, iconic 'retro' styling, albeit in silver clothes. And it really is all-new; IAG have put a lot of thought into it.

Most impressive is the transport, also seen in the considerably pricier Quad 99CDP-2. Gone is the Philips CDM12.4 mech of the old 8000CD, and instead the new spinner is based around a Philips VAM2202. However, rather than using bundled software to control this mechanism (i.e. the programming onboard the accompanying Philips CD10 servo-decoder chip), IAG has programmed the CD-10 to its own parameters and protocols - possibly only by the hiring one of the key personnel responsible for Philips' original development of the CD10 chipset. The entire control system for the laser optic (disc reading strategies and laser control) is bespoke, and not compromised by having interleaved code and contingencies for computer data reading, reading discs while on the move, or for reading discs while in-car, all of which have been included in previous Philips transports to the detriment of playing a disc while the player is in a stable environment on a shelf! The result is what Audiolab call their "lazy servo" [see box].

Moving downstream from the transport, and the machine is divided up into separate digital and analogue stages with twin power supplies (i.e. one for each stage). The latest generation 24bit/192kHz digital-to-analogue convertors from Crystal Semiconductor are fitted - no antique 20bit design for the new 8000CD here. There's an improved alphanumeric vacuum fluorescent display panel, which can be defeated, and anoraks will notice that (along with the ever-so-slightly different 'audiolab' font), this is the main difference to the 8000CD of old, because of its rounded corners, inset into the fascia. That and the colour, of course!

Round the back, there are two sets of analogue outputs (useful for multiroom systems) and BNC, Toslink and coaxial digital outputs. These can be defeated by going into the 8000CD's 'operating system', by pressing the play and stop buttons simultaneously on switch-on. The Play button on the remote lets you toggle the digital out on and off, and yes - it really does make a slight difference if you switch it off when you're not using it. This menu also lets you switch between digital filter settings [see box]. The remote is actually new, but has the timewarp early nineties styling of the original 8000CD handset. Overall, the presentation of this machine is very good, but it still can't mix it with the likes of Marantz, at least for perceived build and finish - no thick slabs of brushed aluminium here for this 445x74x335mm pressed steel box. Appropriately perhaps, the machine is more reminiscent of a piece of lab gear than a swish slice of hi-fi. It's brightly lit and spry, offering an 'autumn sunshine' feel to whatever it plays. Dynamic contrasts - light and shade - are strongly portrayed, and this plus the fine timing and crisp tonality make for an almost translucent sound.

This doesn't suit some types of music, almost in the way that the Beatles don't suit CD. Curtis Mayfield's 'Jesus' was beautifully rendered, with oodles of detail (amazing at the price, making some rivals sound positively out-of-focus). Soundstaging was superb; it's an impressively 'dimensional' performer, never falling into that budget CD trap of laying everything around the plane of the speakers. Rather, there's real depth here, the Audiolab hanging 'what it does, it does extremely well, and that is most things...'

"Glass-clear" is probably the best description. Tonaly, the new 8000CD is very clean and transparent - almost starkly so. It's certainly never going to be accused of being 'lavish' or 'lush'. It's brightly lit and spry, offering an 'autumn sunshine' feel to whatever it plays. Dynamic contrasts - light and shade - are strongly portrayed, and this plus the fine timing and crisp tonality make for an almost translucent sound.

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images quite far back if the recorded acoustic dictates. Still though, it didn’t sound quite right, because the machine was just a touch too explicit across the midband for the music’s good.

Part of this is down to the fact that, unlike many modern machines, the treble hasn’t been rolled off to give it artificial warmth. It’s open and airy and expansive, but CD’s generic deficiencies in the bass department (i.e. lack of weight) are there for the hearing. In short, the 8000CD can sound a little lighter downstairs than many rival machines (in fact, it’s probably more accurate, but that’s another matter), so there’s no euphonic warmth engineered in for effect. Bass is taut and tight and decently strong (certainly not weak kneed), but not fat and sumptuous - and you should bear this in mind when system matching.

This, indirectly, leads me on to what I regard as the single stand-out quality of this machine - its timing. It works extremely well in this respect. It doesn’t time in a predictably metronomic way, but is still ultra-stable and focused. It really is like being inside a song, and delights in those rhythmic inflections, those spaces between the notes, that makes music magic. In this respect, it’s all the better for not having an overweight, tardy bass to slow it down.

World of Twists ‘The Scene’ is a case in point. It’s a busy early nineties slice of electronic pop (much of which is courtesy of Dave Ball, ex-Soft Cell, trainspotters), full of swirling synthesizers and lavish electronic percussion. There’s a lot to get jumbled up and confused, but the 8000CD sctched through the whole sprawling wash of sound, throwing out deliciously delicate hi-hats timed to perfection. It hangs on like no other sub-£1,000 player (Naim CD5si notwithstanding) when the going gets tough, remaining open, even-handed and unfuddled at all times.

This is just as useful with large classical works, when the machine’s innate rhythmic rightness makes for a beautifully poised performance. Alloy to this the excellent spatial ability and depth perspective, and an EMI recording of Mahler’s 10th Symphony proved an electrifying experience. Even when the orchestra moved to a crescendo, the Audiolab showed real grace under pressure. Rhythmically, the 8000CD doesn’t have that overt ‘swing’ of a Naim CD5si, but it still has all of its composure. If you can divide up a player’s ability to time into a two aspects - its ability to convey accents, and its ability to remain consistent and composed always - then the Naim does the former better; but the Audiolab excels with the latter.

The Audiolab’s wonderful treble is surely a function of its superb drumming, it throws out massive amounts of filigree detail from Simply Red’s ‘Say You Love Me’, proving delightfully spacious up top yet smooth too. Although the treble is definitely ‘well lit’, it’s never harsh or forward, and makes a whole range of rival machines seem woolly, vague or simply just dull. There’s lots of atmosphere and real insight into recordings. It all adds up to what non-audiophiles would call a very ‘precise’ sound - this isn’t in any way disparaging; indeed for £600 it’s a rare skill.

CONCLUSION

You could say the Audiolab has an ‘architectural’ sound, not too dissimilar in some respects to a Michell GyroDec. With wonderful clarity and scale, it is particularly accomplished with classical and electronic, and sounds crisp and impactful with rock and pop too, yet it makes jazz and soul a tad less emotive than they might otherwise be. Me, I loved it - what it does, it does extremely well, and that’s most things. But don’t go thinking it’s a universal panacea; here’s a superb modern CD spinner that demands you to audition it, with your music and your system and your tastes. Still whichever way you look at it, it’s still superlative value. Audiolab has risen, like a phoenix from the ashes...

MEASURED PERFORMANCE

Frequency response of Audiolab’s new 8000 CD player extends smoothly from 2Hz all the way up to 21.5kHz as our analysis shows, irrespective of filter. There’s no high frequency tailoring on the player should sound balanced tonally, without any form of euphonic enhancement.

At high music level, distortion was very low at 0.0005%. At -30dB - a typical average music level - there was only a small rise, to 0.005% and our distortion analysis shows this. At a low music level of -60dB performance held up well, a figure of 0.22% helping to produce a good EIAJ dynamic range figure of 11dB, comparable with the best players available, again irrespective of filter. So the Audiolab turns out a set of results that are beyond criticism and are about as good as it gets from CD. Output measured a healthy 2.4V and channel separation was high. There was almost no jitter, the analyser showing a level of around 8ps right across the audioband.

The 8000 CD measured very well in all areas. It is a well executed design that should sound smooth and clean.

VERDICT

Exquisite timing and superlative transparency make this brilliantly accomplished at the price, but sound may be too soporific for some.

Audiolab 8000CD £600

FOR
- translucent sound
- superlative timing
- iconic styling
- value
AGAINST
- spry tonality

CD
Distortion
0dB 0.0005%
-6dB 0.0007%
-60dB 0.22%
-90dB 0.25%

Separation (1kHz)
-121dB
Noise (IEC A)
-108dB
Dynamic range
111dB
Output
2mV
In a world where so much looks the same, we take pride in being different!

Lifetime warranty is a natural part of our philosophy

Densen products are built for life and for long-lasting state-of-the-art performance. That’s why all Densen products come with an exclusive lifetime warranty. The warranty is a global carry-in warranty that lasts as long as you own the product. At this time in history, Densen is the only manufacturer to offer lifetime warranty on high-end Hi-Fi. However, the warranty is no longer valid if you want to find out if the products float on water. Believe us, they don’t...

It is our intention to make complete products. Not just products that are sonically superior, but complete like a perfect circle. As you learn about Densen, you’ll discover that we go the extra mile in every aspect: design, user-friendliness, quality, warranty, upgradeability, production methods and of course sound quality. But you really won’t have a clue about it all until you get to hear and see what we’re talking about in real life. Then you will know what we mean when we say Air-Guitar factor (say what? check our website). There is one Air-Guitar / Air-Baton included with every Densen product. LIFE IS TOO SHORT FOR BORING HI-FI.

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## KEL84 Valve Amplifier Kit

"The quality that can be gleaned from this amp is a fine introduction to the joys of the valve sound"

The KEL84 features a pair of EL84 valves in Push Pull configuration per channel, providing two channels each 18 Watts into an 8 Ohm load. Available as a 5 input integrated amplifier with ALPS volume control.

<table>
<thead>
<tr>
<th>Kit Type</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>KEL84 kit</td>
<td>£325</td>
</tr>
<tr>
<td>KEL84 built and tested</td>
<td>£499</td>
</tr>
</tbody>
</table>

## WD88VA Valve Amplifier Kit

"The result is an amplifier that combines majesty, transparency and rhythmic boogie factor with the ability to swing and sing on all types of music"

Often described as a 'sweet sounding' valve, our particular implementation of the KT88 makes sure that it is driven to its ultimate performance. Available as a 35W stereo power amplifier with single input volume control, or as a relay switched integrated with five inputs.

<table>
<thead>
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<th>Kit Type</th>
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<td>WD88VA kit</td>
<td>£699</td>
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<tr>
<td>WD88VA built and tested</td>
<td>£999</td>
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## Headphone II Valve Amplifier Kit

"Headphone II is a single-ended design with the power pentode wired up in triode configuration for added purity and is as quiet as a mouse"

A beautifully simple stereo headphone amplifier design using Mullard ECL83 valves. It works directly from any source. The circuit uses twin high specification E/I output transformers that can be wired to drive any headphones between 16 to 300 Ohms.

<table>
<thead>
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<tbody>
<tr>
<td>Headphone II kit</td>
<td>£275</td>
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## WD25A Standmount Speaker Kit

"The one aspect that stands out is the easy ability to resolve instruments and voices ... bass quality and definition is a revelation"

The aperiodic enclosure offers the bass clarity and definition of a larger closed box, together with the efficiency and easy amplifier load necessary for users of valve amplifiers. Available with SEAS STD soft dome treble unit, or high performance SEAS Excel treble unit.

<table>
<thead>
<tr>
<th>Kit Type</th>
<th>Price</th>
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<tr>
<td>Cabinet kit (pair)</td>
<td>£179</td>
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<td>WD25A STD kit (pair)</td>
<td>£215</td>
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<tr>
<td>WD25A XL kit (pair)</td>
<td>£398</td>
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</tbody>
</table>

## WD25T Floorstanding Speaker Kit

"The WD25T always sounds crisp and taut, but can 'rumble' menacingly giving impressive physicality reminiscent of far larger boxes. Imaging is superb, the midband is also special; it's very open with masses of detail about the condition of the recording"

Cunningly arranged as an aperiodic enclosure leading to a lower sealed compartment, the WD25T combines the optimum damping of aperiodic loading with the bass extension of a large closed box. Available with STD soft dome or high performance Excel treble units. Both the WD25 kits are based around a SEAS 26cm (10") paper cone bass unit with an efficiency of 89dB for 1W. The crossover has been developed for an easy drive 6 - 8 Ohm load making the system ideal for all types of amplifiers.

<table>
<thead>
<tr>
<th>Kit Type</th>
<th>Price</th>
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<tbody>
<tr>
<td>Cabinet kit (pair)</td>
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<tr>
<td>WD25T STD kit (pair)</td>
<td>£279</td>
</tr>
<tr>
<td>WD25T XL kit (pair)</td>
<td>£459</td>
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</tbody>
</table>

All our kits are complete with pictorial easy-to-follow instructions. All parts are included - all you need is a screwdriver and soldering iron.

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ARCAM DIVA A80 AMPLIFIER
MONITOR AUDIO SILVER RS6 SPEAKERS

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• Remote Control
• Headphone Socket

RS6 SPEAKERS
• Floorstanding Design
• Choice of Finish Options
• Biwirable

“The Silver RS6 is a success: it looks dressed to kill, delivers plenty of detail and punches like a heavyweight"
Marantz

Marantz is introducing a host of new products ranging from high-end hi-fi to HD-ready DVD players and AV receivers. Latest additions to its hi-fi range include the entry-level CD5001 CD player and PM4001 amplifier offering a taste of high-end audio at an incredibly competitive price.

Arcam

SOLO

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KEF

IQ5

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- Finish Options
- Floorstanding
- What Hi-Fi? Award-Winner

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B&W

CM1

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QED

How much difference can cables make to your system? With QED's range of audio and video cables the answer is probably much more than you think.

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See and Hear the difference

SEVENOAKS

the leaders in quality hi-fi
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MAKE THE INFORMED CHOICE TO ENHANCE YOUR LISTENING PLEASURE

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Arcam
Arcam offers the movie and music lover the most complete range of high-performance home entertainment solutions.

"Exceptional sound performance with music and movies... Arcam's best sounding AV receiver has landed"

New DiVA
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Behind The

Much as the makers of high end hi-fi might like to pretend otherwise, the stairway to hi-fi heaven need not be paved with gold, says David Price. Instead, the secret's not believing the hype, buying the right kit for you and matching it all meticulously. Oh, and it also helps to know when to stop...

We live in a consumer society, where we're constantly bombarded with 'messages' (okay, let's call it advertising) that tell us our life is somehow incomplete without brand X or product Y. Despite all the evidence to the contrary — the fact that we're on the planet, by and large doing good, working hard, raising families, taking care of our loved ones, etc. — our lives would just be so much better if we had this or that...

The idea is that 'owning' (let's face it, we're not on the planet for ever, so our custodianship is more like buying the freehold) this or that will enrich our lives in ways we never knew possible, bring unknown pleasures to our very soul, and move us up on to a higher plane. Consumer society promises happiness if you follow its rules, and go forth and consume, and this applies to hi-fi as much as anything else.

It works on the presupposition that [a] music is great and [b] the only way to truly experience it is by buying the ultimate. Only one of these two propositions is correct, and the fact that professional think the general idea is right, that the better your hi-fi is, the more you'll enjoy music, but I also think it's a dangerous oversimplification. Although having massive amounts of cash to throw at the problem is handy, it most certainly isn't a guarantee that you'll reach hi-fi Nirvana (and the letters pages in this magazine are living proof — lots of folk with very serious systems seeking better).

In truth, it's a stairway. You join it, and get off, when you want. You simply don't need to have many thousands of pounds to do this.

"spending massive amounts of cash is no guarantee of stunning sound..."

The reality is that for a few hundred or so, you can get a nice sound which can be, by judicious fettling, very, very nice. Indeed, an £800 system properly fettled can equal or even better an £8,000 one.

Now, I'm not saying that eight gees spent on hi-fi is a waste. It's just that anyone with such a system also has to spend a lot of time tweaking it to give of its best, so it can really shine. Of course, you can squander twenty years of your life fiddling around with speaker stands, mains cabling or interconnects like moi, but it would be nice if (at this price) the dealer could supply his expertise for free, and they sometimes even...
BUDGET VS. HIGHEND SHOOTOUT

Here we put three systems from budget, mid-fi and high end price points respectively (and all carefully matched), against one another. Can things only get better, the more you spend? Yes and no, thinks DP...

BUDGET (£1,000)
Cambridge Audio 640c CD player (£250)
Onkyo A-933 integrated amplifier (£500)
Monitor Audio Radius90 speakers (£250)

Lovely! No one would imagine quite how well this system gels. There are other ways of spending a grand, but this one’s banking on the two £250 bits of kit (the CD player and speakers) being special enough to handle the truly wonderful Onkyo A-933, which as anyone who’s got one will know is a gem. The 933 has loads of power and it’s very clean and rich sounding, with an excellent soundstage; the tiny MA need lots of wallop, and they get it, the result being a very fast, light and surprisingly weighty performance. The Cambridge CD player is great at the price; smooth and open. Together, it makes a surprisingly revealing and enjoyable sound — more ‘pint sized superfi’ than ‘budget’.

MID-FI (£5,394)
Tube Technology Fusion 64 (£2,200)
Sugden A21SE (£1,995)

Revolver RW45i loudspeakers (£1,199)

Here’s where there’s a step change in scale and sophistication. This system’s been deliberately blended to sound very warm, lucid and emotionally engaging, and it does just that. The TT Fusion CD spinner is a superstar, offering a beguiling musical sound that not even the Naim quite approaches, at £12k more! The Sugden is deliciously emotive sounding, and has a lovely clean tonality which cuts through the mush on poor recordings, but it’s weak-kneed, hence the deployment of Revolver’s exceptionally efficient RW45i which go stupidly loud with just 20W or so. The result is warmth, depth and finesse unheard in the budget system, but there’s still a visceral thrwack on kick drums from the budget system that’s missing here; the combination of those super-taut MA micros and a hairy-chested Class D Onkyo integrated has something that this system hasn’t.

HIGH END (£17,750)
Naim CD555/555PS CD player (£14,000)
MF Audio Silver Passive preamp (£2,750)
NuForce Reference 95E monos (£3,100pr)

BM 801D loudspeakers (£10,500)

Kowabunga! Any yearning for lightning transients and massive dynamics created by the mellow mid-fi system is instantly dispelled. The Naim CD spinner is massively commanding, bristling with dynamic impact and energy, the MF Audio/ NuForce pre-power is as transparent and sharp as they come, and the big B&V loudspeakers are literally the most physical speakers on sale. You’re pinned to your seat, assaulted by swathes of energy issuing forth from the speakers, utterly enraptured (and almost daunted) by the massive attack of percussion and the sheer physical size of vocals, which tower above you. However, there’s a slight lack of midband warmth here; it feels like your ears are welded to the 801’s voice coil, and there’s almost no room to breathe. This is a stunningly impactful system, but whatever you do, it just goes on the attack, demanding your attention, pinning you to your seat. The mid-fi system is a lot more languid, relaxed and, dare-we-say-it, effortless — music washes soothingly around you like waves lapping at the shore. There’s also the sheer physical size and complexity of this system — suddenly the budget system seems remarkably accessible compared to the high end, and — famously enough — barely any less musically enjoyable. A well designed budget system - small, but perfectly formed — can mix it with superfi in more ways than you’d think!
Hyperion
HPS-938 (piano black) - £3750

"These are amongst the finest loudspeakers we have ever sold with performance comparable to models several times the price."

McIntosh
MCD-201 SACD Player - £3500
MA-6900 (200W/ch) Integrated Amp - £4550
MC-275 (75W/ch) Stereo Power Amp - £2580

"Come and demo McIntosh components against some of the other best solid-state and valve designs and you'll see (hear) why Mac has so many loyal followers after 40+ years in the business!"

Tannoy Autograph Mini
Oak Finish - £1250

"This delightful new bookshelf model has been a huge success. It's a long time since we've seen a really good, affordable mini speaker (excepting, of course, the Stirling 3/5a)."

Stirling Broadcast
3/5a
Wanut - £890
Maple - £937
Rosewood - £972

"Still able to impress after all those years, these remain the definitive tiny speaker, the benchmark by which others are judged."

Mystery hi-fi face of the month

"Anyone know who he is? Answers on a postcard, please..."

Solid Tech
Isoclear isolation feet (left) Set of 4 (20kg) - £51
(extra springs can be purchased for up to 40kg)
Radius stand (right) - contact us for prices

"Swedish made Solid Tech is the line of isolation products we've been seeking for a long time. Superbly made, stylish looking, and modular. Even the humble isoclear feet can be adjusted by simply adding or subtracting springs to cater for uneven loads.

The domestically acceptable Radius can be configured with almost any combination of shelf spacing, and some shelves suspended for isolation. The Rack of Silence is a state-of-the-art stand using cross members instead of shelves to reduce resonance. Shelf isolation springing is freely configurable for different loading."

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MILESTONES – KEY MOMENTS IN AFFORDABLE AUDIOPHILIA...

1974  PIONEER PL12D TURNTABLE
The first affordable (£50) high quality mass produced turntable; sounds surprisingly good even now with a warm, musical, sweet nature and no nasties (rumble, feedback); the latter alone was enough to set it apart from rest.

1978  ORTOFON VMS20E CARTRIDGE
No 'real world' cartridge had ever sounded as good; smooth, couth, open, detailed and spacious; real finesse for around £30.

1979  NAD 3020 AMPLIFIER
The princely sum of £79 bought a European designed, Taiwanese made budget superamp with brilliant loudspeaker driving ability, thanks to a serious power supply, that totally belied its 20W rated power.

1979  HEYBROOK HB1 LOUDSPEAKERS
Seminal Peter Comeau standmounters which took £130 boxes to a new level; massively musical and effortless too; modern budget bookshelf designs don't come close.

1980  DUAL CS506 TURNTABLE
Brought real depth, definition and finesse to entry-level vinyl playback. Swiss-watch precision was something not even the Japanese could match at the price.

1981  CREEK CAS4040 AMPLIFIER
About £130 gave a real, no-holds-barred amplifier that came close to the A&F A60 at twice the price; very smooth, even and musical.

1982  KEF CODA LOUDSPEAKERS
Crude but effective old-skool two way standmounter, these were far more musical than they had a right to be at under £100.

1983  REGA PLANAR 3
The earlier Planars were superb, but the new RB300 brought massive detail to mid-price turntables for the princely sum of £188. Some still use these in superfi systems with brilliant results.

1984  ROTEL RA2080BX AMPLIFIER
The silver 820 lost its tone controls, got a coat of eighties-tastic matt black paint and turned into a swan – a delightfully musical £120 integrated despite the disorienting power output.

1984  MISSION CYRUS 1 AMPLIFIER
Wonderful Henry Azima-designed shoebox that really got straight to the heart of the music; like Land Rover, it outgrew the company that begat it.

1985  TANNYY MERCURY M2 LOUDSPEAKERS
Plug-ugly large bookshelf boxes with seventies throwback styling and tragic vinyl wrap finish, but they brought 'bi tech' polypropylene drivers to the impoverished, previously the province of high end Mission 706s.

1988  PIONEER A400 AMPLIFIER
UK tuned Japanese amp offered power aplenty and musicality too; a bit fierce in the wrong system, but sold by thousand all the same.

1990  MISSION 760 LOUDSPEAKERS
The last fling of the classic budget box; this Henry Azima £99 design bought real smoothness and musicality to students the world over.

1992  MARANTZ CD52SE CD PLAYER
The first genuine 'affordable audiophile' CD player had insight and musicality in equal measure, and gave players at three times the price a migraine.

1993  AUDIO TECHNICA AT-110E CARTRIDGE
A smooth, sweet and svelte £20 moving magnet for next to nothing, but never as fashionable as its inferior Linn Basik cousin.

1994  PRO-JECT 7 AMPLIFIER
Almost no one noticed how good this oddball amp was; a cracking phonostage allied to wonderful musicality.

1995  MARANTZ CD63K1 SIGNATURE CD PLAYER
...in which Mr Ishiwata finally makes a (deserved) name for himself; brilliant re-heated budget Philips with rare finesse; worth every penny of its £500 retail price, even now.

1996  SONY MDS-JE500 MINIDISC PLAYER
Not everyone’s format of choice, but a blinding £300 machine all the same, offering a couthness that no other recording medium had ever achieved at the price.

1997  CAMBRIDGE AUDIO CD4SE CD PLAYER
Ridiculously good for its price point, here was a truly musically insightful silver disc spinner, with refinement the equal of far more expensive machines, for just £200.

1998  REGA PLANET CD PLAYER
Just as the Planar had decapitated its rivals fifteen years back, so the Planet was a wildly musical device at its £500 price.

2003  CREEK T50 TUNER
The problem (for other manufacturers) with this is that it’s very hard to make any convincing argument for ever spending any more; others are better, but the Creek is close at a quarter of the price of top tuners.

2004  CAMBRIDGE AUDIO AZUR 640C CD PLAYER
Wonderfully capable entry level £250 CD player able to shame stuff at four times the price; fantastic detail and liftingly musical too.

2005  ALR JORDAN ENTRY S LOUDSPEAKERS
Karl Heinz Fink penned budget boxes with an uncannily smooth and upmarket sound; why did no one ever notice them?

2005  ONKYO A-933 AMPLIFIER
Don’t let the ‘mini compo’ styling and myriad facilities fool you – a wonderfully powerful and satisfyingly musical machine for under £500.

2006  REGA Brio S AMPLIFIER
A few subtle tweaks made the already lovely Brio a seminal budget buy; £328 amps just shouldn’t be this good; valve nut Terry Bateman brings real music to the masses.
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The star of the whole group test has got to be the £500 ALR Jordan ENTRY L. A sonic triumph" Paul Messenger - HiFi Choice (May 2006)

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Sound Value

Is there such a thing as a serious floorstanding loudspeaker on a limited budget? Well, Channa Vithana thinks there is, thanks to the Q Acoustics 1050 and Crystal Audio THX T3...

Sometimes you find budget separates that transcend the laws of the market. Last year for example, we found that Cambridge Audio's £250 640C CD player uses the very same chipset found in Cyrus and Musical Fidelity machines at nearly four times the price. Considering the obvious quality of the 640C's power supply too, in reality the only thing separating it from its £1,000 rivals was the Cambridge's plainer casework...

It's lovely when you find this sort of thing, but it doesn't happen everyday. You do sometimes see this with amplifiers and - specifically - CD players (which are so uniformly similar inside, as a rule), but it's rarer with loudspeakers. Speakers, you see, are more subject to the rules of physics - what defines a loudspeaker's sound isn't just a circuit board or chipset, but a whole host of materials including large pieces of wood. This 'material world' is less susceptible to magic tricks - a well engineered and built loudspeaker costs real money to make, no matter how clever you are.

Well, the antidote to this immutable rule of the hi-fi cosmos (i.e. quality costs) is Chinese manufacturing. Here's a way to make good stuff cheap; labour costs are vastly lower than in the UK and there are now a range of OEM factories able to do extremely well finished cabinets and quality drive units at a moment's notice. Couple this to UK or European design and you have a recipe for success it seems. It's certainly no coincidence that so many of the products in this month's 'budget special issue' are Chinese made, including the first of these two floorstanders...

Q Acoustics 1050

Producing an attractively designed, well-built floorstanding budget loudspeaker with decent scale and good bass extension was, I thought, impossible. However, for £329.90 Q Acoustics have done precisely this with the 1050 model, the current flagship of the range. Q Acoustics is a part of the large and commercially successful Armour Home Electronics group (that owns the Goldring and QED brands to name but two). Traditionally, Armour have sold Mission loudspeakers, but recently opted to design their own range, and so the services of the highly revered loudspeaker designer Karl-Heinz Fink were employed to voice them.

Described as a two-way reflex type, the 1050s feature a prominent port located on the 32mm thick 'multi radial' front baffle. The cabinet is made of 18mm MDF and the 32mm front baffle also helps increase rigidity as well as being aesthetically pleasing. Of the cabinet, Armour says it, "incorporates extensive internal bracing to reduce resonance, much more than you would expect at this price point." Internally, the 1050 uses a 15 element, fourth-order, Linkwitz-Riley crossover which Armour says, "is something else that is unprecedented in this market sector, but contributes to the excellent dispersion characteristic of this model."

The 1050 features one 25mm ferro-fluid cooled, micro polyester weave tweeter and two 165mm mid/bass drivers with "aluminised copper wire on the voice-coils - to reduce the cone mass and speed up transients". At the base is a nicely designed aluminium plinth (incorporating adjustable spikes) which is delineated from the cabinet undercarriage by a screwed-in aluminium up-stand. The plinth and exterior design with its gently curved corners and clean lines gives the 1050 a discrete, modernist appearance that belies its low-cost price - this is industrial design at its cleverest. They come in graphite black, beech and cherry finishes, measure 975x295x195mm and weigh 17.8kg.

Crystal Audio THX T3

Whereas the Q Acoustics 1050 uses European design and Chinese build to hit the sub £350 price point, at £600 it's possible to make the Crystal Audio T3s in Europe - Greece to be precise. The Athen-
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Crystal Audio THX T3.

based company was formed in 1998 by Vassilis Tsakiris, an engineer who has specialised in acoustics and loudspeaker design for twenty years. Crystal Audio design and make all of their components including drive units, cabinets and crossovers, and as such, they also supply OEM parts to other companies.

The Crystal THX T3s are £600 for the standard (dark) Wenge (Google it!) and silver finishes. They can also be ordered with an optional twelve-layer piano-black gloss for £800. The THX element is usually associated with home cinema designs but it has some interesting specifications that include 'THX Bass Management', said to minimise interaction between speakers and room boundaries, and a front grille design which must not impinge sound quality. Consequently, it's a discrete, aluminium-framed design, set forward from the drive units and features 'vents' to prevent obstruction to the radiated sound on the horizontal axis. In practice, it offered minimum sonic impact when in place.

The grilles also proved aesthetically discrete, because the three 6.5inch (approximately 165mm) yellow mid/bass Kevlar/fibreglass drivers (including phase plugs for a "linear and fast response") are rather distracting to look at. The midrange driver at the top and two bass drivers (including a large port each) below have their own sealed enclosures to avoid standing waves and bass peaks and dips, and they also help to brace the cabinet.

The 26mm silk-dome neodymium magnet tweeter is housed in a nicely designed, isolated spherical aluminium enclosure, which says Crystal Audio, "avoids diffraction effects and improves high frequency performance". It can be rotated by approximately five degrees from left to right, for room integration. There's a choice of spike mountings or wider, delineated metal plinth. I preferred the metal plinths for use on a flat, level floor. Each cabinet weighs 21kg and measures 250x1130x165mm.

SOUND QUALITY

Starting with the Q Acoustics 1050, and the impeccable precision of piano playing by Daniel Barenboim on Bach's 'Well Tempered Clavier' came over rich and deep with fine timbre. There was minimal coloration, an excellent result at this price level considering how hard it can be to reproduce this recording (where I have found some more expensive loudspeakers struggling to cope). Bass extension, and the phrasing of the piano playing, were also nicely communicated.

On 'Slow Motion' by Blondie, there was fine instrumental separation and spatiality. Rhythms were reproduced with scale and propulsion, making the music thrilling to listen to. However, the 1050s struggled to handle Debbie Harry's vocals - she sounded a little strained on crescendos.

The music had excellent instrumental separation on 'Infected' by The The; I could easily follow every element within the mix. Matt Johnson's vocals were well-defined - the 1050s were just about able to contain, control and reproduce the whole composition whilst remaining on the acceptable side of brightness. Overall, timing was very good, with cohesion, rhythm and dynamics aplenty. Powerful and atmospheric, the eastern-flavoured psychedelic rock of 'The River' by The Tea Party was reproduced with dynamism, scale and propulsion. Vocals had control and extension, but there was a small but discernible amount of congestion which led to some instrumental opacity.

Moving to the Crystal Audio T3 at nearly twice the price, and on the Daniel Barenboim version of Bach's 'Well Tempered Clavier' there was no discernible coloration to the solo piano at normal volume levels. Piano timbre was superb, with excellent spatiality and timing - successive notes were revealed with precision, speed and delicacy also. Blondie sounded effortless, with excellent treble detailing and extension, instrumental separation and timing. Most impressive was the ability of these speakers to provide a wide, lyrical spatiality that opened out the sound, which in conjunction with its timing made for really enjoyable music. Debbie Harry's vocals were handled superbly with extension, texture and delicacy, and the high-frequencies sounded very
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Push Pull Integrated Amplifiers
There are two models in this range.
The VP16 (12 watts per channel) and using 6V6 valves. Price £450. The VP60 (60 watts per channel) and using 2A3 tubes. Price £800. Both these models are very conservatively rated and will drive most loudspeakers.

Single Ended Integrated Amplifiers
There are three models in this range. The MP15 (15 watts per channel) and using KT94 valves. Price £750. The MP2A3 (8 watts per channel) and using 2A3 tubes. Price £850. The MP30 (30 watts per channel) and using 300B valves. Price £999.

Headphone Amplifier
The MP5 is an amazing bargain. Not only is it a headphone amp but also a 13 watt integrated with a line stage input and a USB input. So you can link it to your computer or your MP3 player. Best of all it costs just £250.

Preamp Amplifiers
The SL2000A is a remote control line stage. Price £450. The SL2000 is a phono preamp with a line stage and an mm phono stage. Price £425.

Reference Power Amplifiers
There are three Reference mono block amplifiers in this range. The DV Ref 300B amps are 22 watt SE designs with 300B valves. Price £3250. The DV Ref 845 are 36 watt SE designs with 845 valves. Price £2750. The DV Ref 805 amps are 60 watt SE designs with 805 valves. Price £3000.

Products can be purchased from Kronos Hi-Fi or from a select list of dealers in UK.

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Please contact us for carriage charges. So confident are we that you will be delighted with your Dared amplifier that all products are offered with a full 30 day money back warranty. (Conditions apply) More product information can be found at www.kronoshi-fi.co.uk or www.dared tube.com
sophisticated. The depth and spatiality of the Crystals was outstanding, with power, texture and sophistication in abundance.

CONCLUSION

To my ears, the Q Acoustics 1050 redefine what can be done at the sub-£350 price point. A well built and visually attractive floorstanding loudspeaker; it’s an industrial design success and the clean unadulterated lines are something to savour. It also has excellent sound for the price, with enough scale to fill a largish room with ease, such as my own 6x4m listening area. This contrasts with the (£550) Castle Compact Column loudspeakers (HFW July 2006, p44) which are more musical but limited in scale by their smaller cabinet volume. While they weren’t quite perfect with my more expensive Moon Audio and Unico CD review equipment (which were a little too explicit for them in the treble), the 1050s would still make an ideal choice for a high-quality budget system.

The (£600) Crystal Audio THX T3s never once struggled and proved versatile enough with the higher-priced reference system to suit them comfortably. Without their grilles they aren’t quite as attractive as the Q Acoustics 1050s, the Crystals offer a fine blend of qualities, in particular cohesiveness, balance and spatiality. For further evidence, I compared the Crystals to the fine (£800) Monitor Audio RS8s, and found that although the MASs had superior vocal detailing and bass extension, the Crystals had a finer, free-flowing sound with superior scale and more open treble. They were also more cohesive across the frequency range and the timing was also superior.

If you have a high-quality budget system costing around £250-£500 per component, and you want to upgrade from entry level standmounters or floorstanders alike, then the Q Acoustics 1050s are an essential audition. If you’re looking to take your system up a notch or two over the next few years, the Crystal Audio THX T3 at £600 is one of the best sub-£1,000 options available. Clever design and tight cost control, then, means there are even budget loudspeaker bargains to be had!

MEASURED PERFORMANCE

They hardly come flatter than this. The Q Acoustics 1050 is academically flat in its frequency response, our graph shows. Only at high frequencies is there significant deviation from the median line, the tweeter steadily peaking to +3dB at 12kHz. There’s enough lift for the effect to be subjectively obvious in some top end sharpness. Otherwise, the flat response characteristic of this loudspeaker means it will sound detailed, dry and balanced, with a sense of “everything being there” compared to many other loudspeakers, with narrow band losses. However, a flat response loudspeaker isn’t necessarily going to appeal subjectively, even though it is technically perfect, which is why so many loudspeaker manufacturers knowingly deviate from the notional ideal. In particular, the Q1050’s bass will sound restrained and damped; the loudspeaker may well benefit from near wall placement. Whilst bass rolls off to -6dB at 50Hz, the port works at 40Hz to supplement output. There’s a box ‘booming’ from the port, which unfortunately faces forward, so this will likely be heard as colouration.

The impedance curve shows port action at 45Hz, the tweeter cutting in at a low 1.5kHz. This low crossover frequency ensures good driver matching and partly explains the smooth frequency response. Sensitivity was very high at 90dB, another big plus point.

The D’Appolito driver arrangement gives a stretched and uncoloured vertical image, if a consistent one. The Q1050 is a neatly engineered loudspeaker that measures well and should give a good account of itself. NK
\textbf{Pure Evoke-3}

Boasting a mightily impressive feature list, Pure's new Evoke-3 (£165 - www.martindawes.net) is the company's top DAB portable. Standing 190mm tall and 290mm wide, it's significantly larger than I'd expected, and very solidly built too. Pure has played it safe with the styling, as it follows the same vein as the other members of the successful Evoke family, with wood on the top, bottom and sides of the unit and silver-coloured front panel and speaker grilles.

Atop the front-panel is a large (70x45mm) black on light grey background LC graphical display, which allows you to see lists of stations (as opposed to displaying one station name at a time), lists of programmes on the Electronic Programme Guide (EPG), programme descriptions, station text, or it defaults back to displaying the time with very large digits. The buttons and knobs on the front-panel of the Evoke-3 are well laid out, but operation was easiest using the excellent compact remote control provided. The only unimpressive aspect of the unit's operation was that tuning between stations on FM was very slow; although changing between FM stations was quick once the stations had been stored as presets.

The radio has the ReVu pause and rewind feature, and although it works very well, I have to say that I haven't actually ever used the feature other than to test that it works, so I remain to be convinced of its usefulness.

One of the star features on the Evoke-3 is the EPG that shows which programmes will be on for the current day and over the following week. Navigating between stations and forwards and backwards in time on the EPG was straightforward, and you can set the radio up to record a programme to the SD memory card by simply navigating to the programme and pressing the record button, which is similar to the way you set up PVRs - such as Sky+ - to record TV. The only drawback with the EPG at present is that there's only programme information available for stations on the BBC and Digital One national multiplexes, but presumably information will be made available for the other commercial radio stations in the not too distant future.

It's also possible to record the currently playing DAB station to the SD card, or to set the radio up to record between specified start and stop times, instead of recording to SD card the radio can be instructed to output the audio via the S/PDIF digital output or via the line output for recording to an external device. When recording DAB stations it is the actual received compressed MP2 bitstream of the radio station - i.e. the same bitstream that was transmitted apart from any data errors that occur due to transmission - that is recorded to the SD card. And as radio stations on DAB use low bitrates, such as 128 kbps, recording one hour's worth of audio of a typical music radio station only consumes 55MB of memory on the SD card, so you should be able to fit around 19 hours' worth of music on a 1GB SD card.

Incidentally, this method of recording the received station's bitstream directly to memory is the highest quality method of recording radio transmitted via DAB and TV or radio via digital TV for that matter), because there is no loss of quality, whereas most other methods of recording potentially degrade the audio quality, such as when D/A (digital to analogue) or A/D conversions and/or recompression (e.g. to MiniDisc or MP3) is involved.

Another good feature is that the USB socket on the rear of the unit allows you to transfer MP2 or MP3 audio between your PC and the SD card, so that you can store recordings of radio programmes on your PC or playback MP3 files on the radio. The USB socket also allows you to load software updates to the radio. As well as a USB socket, the Evoke-3 has an S/PDIF digital output, headphone socket, line out and auxiliary input on the rear panel.

The radio also has an alarm clock, but when I tested it the alarm only came on after two snooze periods had passed, so it's only recommended if you want to be twenty minutes late for work! I'd imagine this bug will be corrected when the next version of the software is released. The unit can be powered from the mains, by six C-type batteries or by Pure's ChargePAK rechargeable battery pack (£30). Pure quotes 12 hours of DAB playback from a set of alkaline batteries, but with six C-type batteries I only had 19 hours of playback from the SD card.
and Simple?

batteries, and 10 hours with the ChargePAK at normal volume levels.

**SOUND QUALITY**

For such an expensive portable, DAB reception quality was only average, with occasional bubbling mud sounds on the weakest DAB multiplex I can receive, but no problems on the other multiplexes.

On DAB, when delivered with a clean source of audio, the sound quality on the Evoke-3 was very good, and it performed better in this department than the other members of the Evoke family. The unit delivers a big, powerful and bold sound, and the best performance was with vocals, speech and music with a lot of bass.

Classic FM on DAB came over in a rich and dynamic fashion via the Evoke-3, and the sound of the station brought the best out of the sound of the unit. BBC Radio 3 sounded reasonable, if a little uninspiring, although the problem will in no small part be due to the BBC reducing the bitrate of Radio 3 to 160 kbps - see my column on p79 for more on this!

The Evoke-3 also performed very well overall on the middle-of-the-road pop and dance stations on DAB, providing a weighty yet dynamic delivery. It performed less well on rock stations, however, and the audio tended to distort and disintegrate into a wall of sound when loud electric guitars were being played.

And in general, when the audio wasn’t particularly clean or sharp, it became a little muddled and gritty, although this can be attributed to the low bitrates that the DAB broadcasters use rather than the radio itself.

However, if audio quality is your primary concern and you’re not overly bothered about having the latest features, the best-sounding DAB portable I’ve heard to date was the Daulit kitchen DAB/FM radio. At £199 (John Lewis) it’s far from cheap, but their strategy of getting the best sound from one high quality speaker and drive unit really paid dividends - Pure should take note. A positive step compared to the Evoke-2 is that the Evoke-3 now has separate treble and bass controls, which can give a lift to some of the duller-sounding stations on DAB.

FM on the Evoke-3 was very disappointing. The FM receiver is implemented using software-defined radio (SDR) rather than using traditional analogue circuitry, but the receiver had very poor sensitivity and the high-pitch ‘digital noise’ was highly obtrusive on a number of FM stations that my £25 Sony FM portable receives perfectly! For a radio that costs as much as the Evoke-3 does, Pure really needs to pull its finger out with respect to FM reception.

**CONCLUSION**

Overall then, this is an impressive radio, with a superbly comprehensive feature set including EPG and SD card functionality. The sound on DAB is generally very good, but is let down by poor FM reception quality. If you’re heavily DAB oriented these days, it won’t bother you, but those stick-in-the-muds who prefer FM whenever possible should look elsewhere. Finally, the fact that Pure’s One [see opposite] offers so much sound per pound is food for thought...

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**PURE ONE**

At just £50, the ‘One’ is a lot smaller than I’d envisaged (210x145mm) and extremely light. The white rigid plastic casing with curves in the right places makes it a very attractive device, and I much preferred the modern styling of the Pure One to the more old-fashioned look of the Evoke-3. There’s a low feature count, merely offering twenty presets altogether for both DAB and FM; a feature called Inteltext; and a kitchen/sleep timer. Similarly, in terms of connectivity, it only offers a headphone socket and a USB socket for software upgrades. Inteltext allows you to store text information sent by broadcasters that support the feature – such as football headlines sent by TALKsport – which you can then read the text at your leisure. However, because the display is very small and dims soon after you’ve pressed a button (to increase the battery life), the scrolling text is difficult to read, making this feature rather unappealing...

DAB reception was good, with no reception problems on any of the multiplexes I can receive. FM reception quality on the Pure One was also reasonably good, but much better than the Evoke-3, it uses software-defined radio to implement the FM receiver, which makes it all the more baffling why the Evoke-3 had such poor FM reception quality! The Pure One can be powered from the mains, by six C-type batteries or using Pure’s ChargePAK rechargeable battery pack (£30). Pure quotes thirty five hours of DAB playback from a set of alkaline batteries and twenty hours with the ChargePAK at ‘normal’ listening levels.

The biggest difference between the Pure One and the Evoke-3 is in the output power: the former is puny compared to the latter. There’s also a Catch 22 situation: because the radio isn’t very powerful you tend to turn the volume up, but this frequently distorts the audio and the sound descends to an ill-defined mess. This was most readily apparent with loud rock and pop music, but was less of a problem with classical music, middle-of-the-road and dance music stations. As ever on DAB, the Pure One performs better with speech than with music. On FM, the volume was significantly lower than on DAB, and as the radio isn’t very powerful in the first place this did no favours for the FM stations. Overall, the sound is mediocre, so I’d recommend spending a bit more to get a DAB radio with more oomph behind it, like Pure’s own DAB-3 (currently £95.95 at Richer Sounds), unless portable ‘out and about’ operation is essential to you.
Japanese big name brands have driven multichannel almost single-handedly, but there's one affordable audiophile alternative to the orthodoxy of Denon, Marantz, Pioneer, et al. David Allcock enjoys the Cambridge Audio Azur 540R v2.0 experience...

When Cambridge Audio, a company with such legendary designs as the CD1 behind them, arrived in the AV world, the competition knew they had trouble. Their first foray into multichannel, the 540R, was very well received - if a little basic by modern standards - and the subject of this review is its replacement, appropriately called the 540R v2.

The specification is extraordinary for the price point - along with six 80W amplifiers, there are four stereo inputs, a full tape loop, RDS FM tuner, a front panel stereo input with composite video input, three electrical and three optical digital inputs, a pair of HDTV ready component video inputs, three S-video and three composite inputs, and unusually at this price point both a 6.1 analogue input and 6.1 analogue preamp outputs.

These last two features show great forward thinking on the part of the designers. The 6.1 input is not only required for DVD-Audio and SACD multichannel, but more importantly to hear the new Dolby TrueHD soundtracks on HD-DVD and Blu Ray discs. The 6.1 preamp output is also a welcome addition - in a low cost AV receiver the biggest compromises are invariably in the power supplies and power amplification stages, so these outputs give the owner the option of using better quality, external power amps to replace the internal amplifiers.

Opening the box brings you face to face to a solidly built, surprisingly heavy receiver, a dauntingly thick user manual (of which only 32 pages are English), a small ring antenna and a remote control unit. The main receiver is 430x150x350mm (WHD) and weighs 15.8kg. I was pleasantly surprised by the build quality on offer here - surprisingly solid with just a hint of ringing when tapped with a fingernail. Likewise, the controls on the front panel are good, if not luxurious, with the plastic buttons having just a little unwanted lateral travel and the main volume control proving nicely weighted.

On the front panel are from left to right, an on-off switch, 6.3mm headphone socket, tuning up/down and store buttons, direct select source buttons for DVD, Video 1,2 and 3, Tuner, Tape, CD and 6.1 Direct. Just beneath these are less critical controls for surround sound mode with buttons for stereo, Dolby Digital EX / DTS ES, Pro Logic II / DTS Neo 6, DSP Mode and Input mode, a remote control eye, front panel composite video input with stereo audio, all on RCA phono, and finally the volume control.

The rear panel is festooned with connections, starting with 75 ohm FM aerial inlet and 300 ohm AM loop, S-Video and composite video outlets for a TV/monitor, three S-Video and three composite inputs, three TOSLink optical and three S/PDIF electrical digital inputs, a TOSLink and S/PDIF digital output, two component video inputs and a component video output, all on RCA phono connectors, four analogue stereo inputs, a full tape loop, 6.1
direct input and 6.1 pre amp outputs, six pairs of binding posts, an RS-232 connector and control bus for custom installation. Phew! The mains cable is a permanently fixed type giving no option for installing an aftermarket higher quality item.

Connecting this unit held few surprises, though there were a few small shortcomings. Starting with the binding posts, these can accept either 4mm banana plugs or bare wire, but not spades, as the shroud around the binding posts preclude their usage. There is no video conversion inside this unit, so if you have a combination of S-Video, composite and component video devices, you’ll need to run all three video connections to your TV or projector. Whilst six digital inputs are present, these cannot be reassigned to any input, instead you’re restricted to CD, DVD and Video 1 or 2, the three S/PDIF and TOSLink pairs linked, meaning you strictly have three digital inputs, not individually addressable ones, which is a function you take for granted on more expensive receivers.

The only other small disappointment is the preamp out facility, which has to be activated through the firmware and is an all-or-nothing switch, you either have all the preamp outs activated or you have the internal amplifiers activated, you cannot elect to use certain channels on preamp out. The subwoofer implementation is highly versatile, giving 10Hz crossover steps between 40 and 150Hz with a final step to 200Hz.

SOUND QUALITY
I elected to use Onyx Rocket speakers with this receiver, a pair of RS 550 MKII front left and right, RSC200 centre, RSS 300 dipole surrounds with a pair of UFW-10 active subwoofers. Whilst this entire speaker system is still expensive in comparison with this receiver at £1,800 for all seven, they offer phenomenal performance for the money, are a benign 8 ohm nominal load, and are efficient at an average 89dB, making them a transparent match for this receiver. Also used was a Pioneer CLD-99 Elite LaserDisc player used as a Dolby Pro Logic source, and an M-Audio Audiophile 96/24 soundcard used for DVD playback, supplying Dolby Digital and DTS streams to the receiver. My usual reference system comprises a £1,000 Denon AVR-3805 receiver, three Bryston power amps and five Martin Logan speakers with a pair of Rocket UFW-10 subwoofers.

I started out using DTS music, with Jean Michel Jarre ‘Live A Pekin’ DVD (Warner 5046761662), an astonishingly transparent, fast DTS mix pulls the viewer into the concert and is incredibly visceral. I had used...
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MANTRA AUDIO (BPW), Town End House, Skipwith, Selby, North Yorkshire Y08 5SQ
Digital is equally well served musically with the same signature speed and transparency, only with a little harshness in the high frequencies, typical of the Dolby Digital encoding process.

I selected two movies which each present their own challenges for an AV receiver. Starting with 'Swordfish' (Warner Bros. 85392 13222 Region 1). I went immediately to Chapter 18, 'Hitting the Hit Squad', which involves a high speed chase through a city centre with machine gun fire and soundtrack punctuating the sequence. The 540R V2 did an excellent job of allowing each strand of the soundtrack to be heard, but lacked the ultimate low frequency impact of my reference system, with the individual impact of each bullet being discharged from the chain gun sounding less dynamic than through the Denon 3805. Likewise, the dialogue channel had a little less clarity than my reference, but this softer and lacked the absolute impact which I can achieve with higher end units, this is still an excellent result.

A blinding multichannel performance at the price then, but on two channel, this receiver's lower cost roots are more obvious. When used to decode CD the sound is over dependent on the low frequencies, and this means some midband attack, texture and clarity is lost. Likewise, the upper midrange and high frequencies are somewhat harder and a little more forward than in real life. The midband is quite reticent and veiled, giving a slightly murky quality to the sound. However, all the blame cannot be aimed at the DAC stage as the analogue side of things exhibits a lack of midrange transparency together with a slight exaggeration of lower registers. I also noticed that everything went through the processor, even straight stereo, meaning there was no true pass through available for analogue signals.

CONCLUSION
Here is a comprehensively equipped, multichannel AV receiver for only £250 - I have interconnects that cost more than that! Performance is superb on surround sound material, its tuner is very usable and the internal amplifiers are powerful beyond what their specification would suggest. If you are looking for a solid six channel AV receiver which can handle all the current surround sound formats found on satellite and DVD, I would give this an unequivocal recommendation. The value for money is astonishing.

Put simply, it's the only AV receiver at or anywhere near the price that plays music in a listenable way, as well as offering a welter of surround sound facilities. Other Japanese branded designs may have far more gloss and glitz to their finish and feature count, but this one punches way beyond its price point on sonics.

Still, I have to say, for £250 the stereo performance is peerless - I wouldn't so much as contemplate the idea of listening to music on any of the 540R's price rivals, as you'd never get out alive! At this price, the Japanese branded receivers sound just plain nasty on music, and the Cambridge Audio does not - therein lies the difference.

Finally we come to the radio, and I was pleasantly surprised by the sensitivity and separation available on the FM tuner. It pulled in The Bay from about 40 miles North of my home, cleanly with good separation, whilst BBC Radio Three and Four were both very quiet, offering a very listenable sound, whilst the RDS functionality of this receiver worked well. I would, however, recommend a good external, roof-mounted antenna if you intend to seriously use FM, as a small internal FM aerial gave very poor performance.
Roksan

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remember it well. Back in the mists of time, one dark rainy winter afternoon in 1994, (then) Hi-Fi World editor Dominic Baker and I (the humble editorial assistant) were staring at an awful looking black plastic box, with expressions on our faces suggesting we were rapidly losing the will to live. Still, publisher Noel was out (which always meant we actually got on with real investigative journalism — usually pulling things to bits and/or listening — rather than sitting there bashing at our Mac keyboards), so we thought we'd give it 'the treatment'. Dominic got the screwdriver...

That was my first meeting with the DACMagic. Having just reviewed the Teac VRDS-30 high end Japanese battleship, neither DB nor I expected much from such a nasty, flimsy, light, oblong shaped bit of black plastic - but when we pulled the casing off, lo and behold, we got a surprise. It was a work of art. Beautifully laid out with gold-plated printed circuit boards and connectors, high quality low-noise transformers (three of them, feeding nineteen independent power supplies) and dual Philips TDA1305 hybrid DACs with symmetrical dual differential circuitry, it looked more like the inside of a pro audio DAC than a £199 Richer Sounds special.

This was all very puzzling. Dominic, who usually thought he'd got the complete measure of a product just by looking at it, couldn't understand why it was so different under the hood to everything else at the price (or anywhere near it). I was puzzled by the detailing on the front and rear panels. Around the back, there were three digital inputs (one optical and two BNC, labelled CD and DAT), one digital output (BNC) and two sets of analogue outputs (RCA and
OLDE WORLDE

XLR). Balanced outputs on a £199 plastic toy – what was going on? Then there was a curious LED on the front for SCMS (Serial Copy Management System). Well, we all know what this was for, but what was it doing on a domestic DAC – this was (is) the province of pro designs. Curiouser and curiouser...

Little did we know it then, but Cambridge Audio's DACMagic was the brainchild of John Westlake, who penned the Pink Triangle Da Capo DAC. This was Hi-Fi World's DAC of choice, a brilliantly warm and smooth and beguiling bit of kit that sounded like nothing else on the market back then (the Chord DAC64 is its modern spiritual successor now). DB and I took the DACMagic downstairs to our listening room, hooked it up and were amazed.

No, the DACMagic wasn't anywhere near as good as the Da Capo, but it was still unexpectedly capable. It had a very spacious, dimensional sound with a smooth but very detailed top end. It was decently musical and, well, just sounded nicely natural. At the price, we'd never heard anything like it.

The interesting test was what it did with CD players. It was the era of £299 Marantz machines, which were actually pretty good performers even by today's standards. The DACMagic would upgrade a £350 CD63SE quite easily, and even brought things to the £500 KI Signature. Basically then, it would improve on anything under about £600 – Sony CDP-X33ES, Philips CD850 II, Denon DCD820, you name it. Even by today's standards, it will upgrade budget machines at a stroke, but the real fun is to be had when you mod it, whereupon it becomes a giant killer [see TWEAKING]...

Cambridge Audio made a number of incarnations of the DACMagic – the 1, the 2, the 2i. Rumour has it that this latter version had some fifty percent less measured distortion. The Isomagic was its successor, a madcap isolation platform/DAC with similarly excellent sound. Considering the ability of the DACMagic, it's surprising it didn't end up in everyone's first system, like the Pioneer PL12D or NAD 3020 before it, but even in the early nineties, DACs were seen as a bit of a niche product. Still, the Cambridge Audio sold well in this context, and so they're not hard to find secondhand for next-to-no money. Pay £50 or less for a mint, boxed example and then tweak it!

TWEAKING

There's a lot of stuff on modding DACMagics on the internet, but the general consensus of opinion is that the Analogue Devices op-amps let the side down a little on the stock machine. AD OP275GPs are the ones to go for. This brings a fuller, deeper bass and better dimensionality, addressing the main failing of the standard DAC (i.e. slightly light, lean bass). The machine can also be clocked; some recommend an LC Audio XO Clock but there are various options from the likes of Trichord and Audiocom. De-jittering the DACMagic brings a far cleaner and more transparent sound, removing the 'mush' that all CD suffers from to a greater or lesser extent. Finally, there's a range of power supply capacitor tweaks – Elnas, Black Gates, you name it; the great thing about this bit of kit is that it's cheap but tuneable.
Mains cables come at all prices, from sensible to stupid. Does spending more on your mains make a change? Channa Vithana Investigates...

Why bother with aftermarket mains cables? It's a good question. Given that this magazine looks dimly on the claims made by many cable companies, and the fact that this month is a budget audiophile special, we thought we'd try out five designs from £64 to £480.

The five different cables assessed for this review were run-in for a minimum of five hundred hours and compared against a 'free' mains cable (fully run-in) as supplied by most hi-fi manufacturers. Cheap interconnects (£0.99) and speaker cable (£0.49p/M) were also used, to help isolate the mains cables' sound quality. Oh, one word of warning before we embark upon the test: you are now entering the silly name zone...

**AUDUSA EUPEN GILM 05/2.5 SE**

The £64 (1.5m) Audusa uses a foil screen and special ferrite layer; EMC/COM, which is extruded around the copper conductors. This ferrite compound attenuates the "high frequency disturbances that are propagating on the conductor to prevent them from disturbing the signals". The SE version is silver-plated, and the IEC and MK Toughplug pins use "heavy duty" 5-8 micron silver-plating (BSI standard) and are further treated with ProGold contact enhancer. Artur Pizarro's 'Beethoven Piano Sonatas' SACD was much quieter in comparison to the free mains cable. This is a tricky recording, where the piano can sound coloured, and is tonally distinctive. However, the Audusa minimised the coloration very well in comparison to the free mains cable and had a fantastic bass tunefulness and extension also. The Audusa had slightly less well illuminated high frequencies. Bass tunefulness and extension was superior to the free cable with the thrash metal of 'Cowboys From Hell' by Pantera, and this helped to reproduce their crushingly powerful dynamics. The lead vocals and drums in particular were clearer. Overall, a definite step up from the stock cable, well worth the outlay.

**JAS ZION AUDIO EXTRA POWER**

The £159 (1.5m) Extra Power mains cable, says JAS, "is composed of three silver plated 12 AWG 6N OCC/OFC (copper) conductors. The line and neutral conductors are separately insulated with Teflon and individually shielded with close-tapped 6N OCC/OFC braiding providing 100% coverage for RFI/EMI avoidance. A 100% cotton cord is used in the centre for resonance and vibration damping." The JAS Extra Power is fitted with a red MK Toughplug. The 'Beethoven Piano Sonatas' had the quietest background of the group and the JAS was distinctly smoother. The music was exceptionally controlled and reproduced unflappably throughout the frequency range unlike the 'free' mains cable. Powerful dynamics were revealed, but not quite the best timing. However, there was excellent instrumental separation to 'Cowboys From Hell' and bass tunefulness was superb as was extension. The JAS cable was clearly superior to the 'free' mains cable in every area, but fell down in respect of timing against its LAT and Chord price rivals. Beautifully smooth, it's one to use to tame fierce systems.

**TCI BOA CONSTRICTOR**

The £480 (1.5m) Boa Constrictor consists of 2x4x0.597mm² silver-plated copper alloy cables, split into six live and six neutral sets of interwoven wires, with a further twelve wires woven around them acting as a filter for RFI. The plug utilises nickel plating and then rhodium plating for its pins while the IEC socket looks like a (Kimber) Wattgate 320i type with its clear cylindrical body. The Boa Constrictor has a claimed, calculated, 2.69ohm/km resistance which is much lower than TCI's £199.99 Super constrictor (4.04ohms), £99.99 Constrictor (5.14ohms) and £69.99 Baby Constrictor (8.5ohms). TCI says that lower resistance allows power supplies to recharge faster for better dynamics. The outstanding bass extension and tunefulness of the TCI was soon evident as it really had a wonderful ability to reproduce the timbre and dynamics of the solo piano playing from 'Beethoven Piano Sonatas'. The TCI also had fine spatiality and expressiveness when it came to reproducing the layering of successive notes from the piano. There was a slight but discernible smoothness; however, the power, expression and sheer grip from the bass was palpable with 'Cowboys From Hell'. Timbre to the lead guitar was also stunning, eliminating the uncomfortable ringing distortions of the 'free' mains lead. Excellent, but so it should be at this price!
**CHORD COMPANY POWER CHORD**

The £140 (1.5m) Chord Company’s Power Chord has the rare distinction, for a mains cable, of being CE safety approved [and rarer still, doesn’t have a silly name – Ed.]. The outer jacket is made from PVC because it is durable. Next, a three-layer screen comprising of two foils plus one circular braid and then a woven layer of PVC, and finally, three 13AMP OFC conductors with polyethylene insulation. For the Schurter IEC, Chord used direct soldering instead of screws for better sound quality. The Power Chord uses a white MK Toughplug. Timing from the solo piano playing on the ‘Beethoven Piano Sonatas’ SACD was outstanding via the Chord, so the layering of notes and phrasing of the piano flowed effortlessly. Timbre from the piano was superb - there was no unwanted coloration in comparison to the free mains cable. The Chord had excellent timbral acuity with the instruments and vocals on ‘Cowboys From Hell’ by Pantera. Here, at all the frequencies, it was entirely convincing, and consequently music was wide, deep and powerful. Without doubt, worth the extra cash in every respect.

**LAT INTERNATIONAL AC-2 MKII SE**

The £132 (1.2m) LAT uses a foil screen, PTFE/Teflon, and proprietary Silverfuse which is, “a near alloy of silver and copper. It is not silver plated or silver clad. Plating causes a dioding effect when signal is passed through resulting in brightness and distortion. The Silverfuse process starts with seven nines (99.99999% purity) OFHC copper wire (which) is then pulled through a trough of molten silver. The wire with a silver deposit is then forced through a compacting die where it is subject to tremendous pressure. The silver and the high purity copper are fused together into a near alloy. No dioding subsequently occurs with this process.” The SE version has silver-plated MK Toughplug and IEC pins.

Timing was superior compared to the Audusa and standard free cable on the ‘Beethoven Piano Sonatas’ SACD. Here the LAT had a nicely balanced sound overall, with the quietness of the lower-cost Audusa but now with a more revealing midrange and treble with superior timbral and phrasing finesse compared to the ‘free’ mains cable. The LAT opened out the music to ‘Cowboys From Hell’ by Pantera with a much wider aperture allowing free-flowing dynamics. It had slightly less bass extension than the Audusa but was more musically cohesive. The LAT’s assuredness with timing established a finer, life-like feel to ‘Cowboys From Hell’ than the free cable. In most respects then, a marked upgrade to the Audusa.

**CONCLUSION**

There’s no doubt that bundled mains cables aren’t much good (sonically, although they do a worthy job in establishing a basic electrical connection), and that spending more yields significant sonic benefits. The question is - what is the order of magnitude, and does this correlate to the extra outlay? Here is my order of preference, starting with the worst (in sonic terms)...

The £64 Audusa had fantastic bass tunefulness and provided a very low noise background for the music compared to the freebie. It is excellent value for money and though not as sharp in the higher frequencies, it was easily superior to the ‘free’ cable.

The £159 JAS cable had a particularly identifiable musical smoothness, which some will prefer. It also provided an exceptionally quiet background to music, and unflappable control over all the frequencies. The JAS was good but seems better when combined with its own interconnects and speaker cables (see HFW May 2006, p17).

The £480 TCI Boa Constrictor was slightly smooth but had outstanding bass and control, which is expected at the price. It startlingly revealed the music in all its glory and will benefit high-end sources most. Although able, you pay for it.

The £132 LAT had less identifiable bass extension but instead supplied frequency range cohesion, with excellent bass, mid and treble tunefulness. It also had good timing to help express the layering of musical notes from a piano sonata to the thrash metal of Pantera.

Overall, my personal choice is the £140 Chord Company Power Chord, which had the best timing of the group, and sounded the most natural as a result. Timbre, and therefore individual instrument and vocal identities, were also first rate.

If you can put up with the whole wretched world of silly names and snake oil that is hi-fi cables, then there are real benefits to be had, and by and large, spending extra does yield improvements - although I have to say that the £50-£150 price point is the one to go for; - you want the maximum ‘bang per buck’. Whatever you do, I’d suggest you find a good dealer who can lend you cables to try out in your system – as the effects are so subtle, it’s the only truly reliable way to upgrade.

**REFERENCE SYSTEM**

- Moon Audio i-3 integrated amplifier (£1,595)
- Onkyo DV-S1000E universal player (£2,800)
- Castle Compact Column loudspeakers (£550)

**VERDICT**

- Chord Company Power Chord
  - £140
  - Chord Company
  - www.chord.co.uk

- LAT International AC-2 MKII SE
  - £132
  - Audusa
  - www.audusa.com

- Audusa Eupen GNLM 05/2.5 SE
  - £64
  - Audusa
  - www.audusa.com

- JAS Zion Audio Extra POWER
  - £159
  - JAS Audio
  - www.shadowdistribution.co.uk

- TCI Boa Constrictor
  - £480
  - True Colours Industries
  - www.true-colours.com

- Chord Company Power Chord
  - £140
  - Chord Company
  - www.chord.co.uk

- LAT International AC-2 MKII SE
  - £132
  - Audusa
  - www.audusa.com
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On The Run

Stalwart contributor Dominic Todd posts a running report on his current reference system, one that didn’t cost a fortune...

They say the cobbler’s son has the worst shod shoes and, in some respects, that’s how I feel about my system. It’s far from being bang up-to-the-minute, nor does it resemble a classic system from yesteryear, but it is the sort of thing you could put together to get a great sound at a bargain price. I’ve lived with it for some time now and it survives, in spite of more modern items passing through my hands.

When it comes to reviewing I generally use other equipment that’s relevant to the product or my Sennheiser HE60/HEV70 headphones. The rather modest, small graphite coloured box in my system is the headphone amp. It’s a Class-A design and works wonderfully with the electrostatic HE60 headphones. Aside from a slightly weak bass response, these headphones allow me to listen to any source, warts and all. Along with the sublime transparency, another key aspect of using headphones for review or pleasure is the freedom from room acoustic variations. I can use them in any house, room or listening position and still get to hear the heart of the music, and all perfectly staged.

There are times though when even the best headphones aren’t enough. Rather like the vegetarian who craves a bacon sandwich, sometimes only a pair of loudspeakers will do. I bought my Celestion SL600s some fifteen years ago now, and yet they still have qualities that impress me today. There’s a sense of seamlessness and cohesion to music that I find lacking in many modern speakers. Considering their size they also manage to pack quite a punch although not always, I must admit, with the most lightning of speed.

Since owning them, they’ve been heavily modified with upgraded internal cable and crossover components. The switch to DNM Reson cable internally opened the midrange that connect with the music so well at least not under £2,000 or so.

So to the turntable. This oddity is actually something of a stopgap. With a house move having recently drained my funds, I had to part with my beloved Roksan Xerxes/Artemiz. Filling its place for now is an Ariston RD90 Superieur. This lovely old deck was actually unused when I bought it a couple of years ago for £40! It had languished in a dealer’s stockroom, with the box gathering mould. One look, and feel, of that incredibly heavy brass platter and I couldn’t resist.

Powering the ’600s is a Thule IA100. I came across this 100-watt integrated almost by accident. It’s a Danish design that cost around £1,000 ten years ago. There was never much made of the IA100, but I’ve always found its dual-mono configuration and high current output to be a good match for the Celestions. Its also exceptionally neutral and, as such, an excellent reviewing device. Balanced XLR sockets allows me to review CD players with balanced outputs and the protection circuit has probably helped save innumerable loudspeakers from certain death.

Rather like the amplifier, my CD player is less well known. It’s the rare, two-box version of the early nineties classic, the Cambridge CD3. With its wonderful Philips CDM1 Mk2 diecast swing arm transport and Crown grade 16x16 DAC, this is classic multibit from its glory days. By today’s standards the treble is a little rough, but it’s the midrange that makes this player stand out. There’s a certain solidity and bounce that, whilst not strictly neutral, makes for a highly entertaining listen. Whilst just about any CD these days will offer greater refinement, there are still few that connect with the music so well.

Not every hi-fi system has to cost a fortune. This one is modest, but thoroughly enjoyable. Until I can afford said Roksan, or perhaps an SME or Michell, I’ll just have to wait to be resoled too...
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- How much should I spend?
- Why has vinyl made a renaissance?
- Just how much do domestic acoustics influence performance?
- How many channels do I need?
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I've been a contented user of a Slim Devices Squeezebox audio system for some time now. It's been a liberating experience, dispensing with a single room only CD system and replacing it with a multiroom capable system that can provide quality digital music wherever it's needed.

Eliminating the CD transport and inclusion of a good external DAC has lifted CD replay quality to the point where my long standing Naim CD5/FlatCap II has had to give way. However, getting to this point was hardly plain sailing, I went through a steep learning process which at times had me questioning my sanity!

Luckily I started out with an advantage, being computer-literate with most of the technology involved. So problems about Wi-Fi security keys, signal strength, etc. were all dealt with easily enough - and yet there were times when I would have preferred to pull my hair out. Quite where that leaves the average Joe who likes the idea of better CD quality, extra features (Internet radio, multroom capability, etc.) but knows little or nothing about computers and Wi-Fi, I'm not sure...

Well, the Sonos multiroom digital wireless system may provide the answer. It makes some important progress in the ease of use and setup department; some computer know-how is still required for setting up but once done the rest is child's play!

The system is based around bespoke wireless relay units that can be installed in any location in the home. Each unit relays music to any other unit within range, extending wireless distance by creating a meshed network is a modified AES encrypted peer to peer network called SonosNet, and works independently of any existing Wi-Fi network in the house. All the units are controlled by a very neat wireless handheld remote with clear LC display and iPod-esque rotary touch and select wheel pad which allows control of any unit from anywhere in the house - neat!

The system allows you to ingest audio from any analogue source and relay it around the Sonos network. This could be music from a Sky radio channel, an MP3 player or even LP record. Multiple audio streams can be relayed at the same time in a 'one to one' or a 'one to many' configuration. But what makes it all so compelling is its ease of use: there are no security keys or channels to mess with, the devices virtually auto-install themselves, as my ten-year-old will testify!

THE KIT

There are two units - the ZonePlayer 80 and 100. The ZP80 features analogue line-in/line-out, S/PDIF and Toslink connections plus a two port Ethernet 10/100 switch, whereas the ZP100 differs with an inbuilt Class-D 50W amplifier and no S/PDIF connections. It also has a 4 port Ethernet switch and a subwoofer output. Speaker connection is via some strongly spring loaded binding posts, which work okay but at the price I would have preferred a good screw down post.

Both units are neatly styled in a MacMini way and both have a front mounted volume control and mute button. The mute button glows green when in operation and there is a white status light indicating mode of operation. The ZP80 measures 243x158x182mm and features a clear 75x60mm colour display. The buttons are backlit and illuminated when in operation and there is a status light. The mute button glows green when pressed or simple movement of the wheel pad which can be woken up with either a key press or simple movement of the unit. The buttons are backlit and illuminated when in operation and there is a status light. The mute button glows green when pressed or simple movement of the wheel pad.

The system supports MP3, WMA, AAC (MPEG4), Ogg Vorbis, Audible (format 4), Apple Lossless, Flac, as well as uncompressed WAV and AIFF files. It has support for 48 and 44.1kHz sample rates and below. Internet radio is supported in the shape of MP3 and WMA streams, the system comes preloaded with 190 internet stations! Rhapsody 3.0+ and Audible are also supported.

GETTING GOING

The first ZP unit (ZP80 or ZP100) needs to be connected to your ADSL router. Your music library, if you have one, needs to be physically connected to the same router. Sonos say they do not support wireless connection of a music library but throughout this review this is exactly how I used it! Also, it's possible to setup the Sonos without a router. Again, this is not automatically illuminate if the light level drops. Battery life is good and an optional charger cradle is available.

The system supports MP3, WMA, AAC (MPEG4), Ogg Vorbis, Audible (format 4), Apple Lossless, Flac, as well as uncompressed WAV and AIFF files. It has support for 48 and 44.1kHz sample rates and below. Internet radio is supported in the shape of MP3 and WMA streams, the system comes preloaded with 190 internet stations! Rhapsody 3.0+ and Audible are also supported.

"It comes wholeheartedly recommended; so much so that I bought one myself..."
supported but in practice works very well! Just connect a ZP directly to your Ethernet equipped PC, it will auto default to a pre-defined IP address and be ready for setup.

With the first ZP connected a system setup and configuration CD needs to be loaded on to a local PC, this can be your home PC or it could be the music library PC. The software sets up a network share of your music library and also acts as a desktop control with the same features as the remote. OS supported are Windows 2000, XP, Mac OSX 10.3 and 10.4.

The software searches for the first ZonePlayer by prompting you to press the Mute button and the + Volume button on the ZP front panel, and once discovered you can name the ZonePlayer to something like 'Office' or 'Sitting Room'. The discovery of any remaining Zone Players is easily performed from the remote. OS acts as a desktop control with the same features as the remote.

The analogue inputs to both the ZP80 and ZP100 can be set to compressed or non-compressed mode. In compressed mode the analogue input is compressed to 128kbps WMA after first passing through an A/D converter, no signal processing is performed on an uncompressed stream. All analogue inputs are treated the same, be it locally on the same ZP or from elsewhere in the network. It's also possible to synchronise players.

After a few weeks familiarity, the sound quality of the system crystallised in my mind whilst listening one evening to 'Later' with Jools Holland via Sky. Amongst the performances two stood out, 'Heart Beats' by Jose Gonzalez and 'Over My Head' by Ray Davis. Firstly, the broadcast sound quality by the BBC impressed greatly and also that it lost nothing in its conversion from Sky box analogue out into ZP80, wireless to ZP100 then out to my 'Spendor 6Se’s. Overall then, this system proved exceptionally capable. Of course, it's not going to out-do a high end valve amplifier the sound proved to be as good, if not better than my Musical Fidelity A3.24 DAC and 300B valve amplifier the sound proved to be as good, if not better than my SqueezeBox II system.

**CONCLUSION**

Ease of setup and use, plus surprisingly free sonics make this a compelling product for those seeking multroom on a budget.

**VERDICT**

- For:
  - excellent sound quality
  - ease of use
  - flexibility

- Against:
  - price

SONOS ZP80
SONOS ZP100
SONOS REMOTE CONTROL CR100
SONOS REMOTE CRADLE CC100
SONOS ZP80 BUNDLE (ZP80 x2 & REMOTE)
SONOS ZP100 BUNDLE (ZP100 x2 & REMOTE)

BUSY back panel of Sonus ZP80.
Usher, In

From Taiwan comes a new entrant to the budget CD player fray – Usher's chunky CD-1. Chinese cracker or oriental excess? David Allcock decides...

Chinese manufacturers have recently come up with some unexpectedly capable components, the Shanling CD-T80, Qinpu AI000X and the JungSon JA88-D being but three examples. To that list, Usher doubtless hopes its CD-1 CD player will be added. So far the brand has been best known for loudspeakers, but they're also a major player in electronics with an extensive range including the R.I.5 class 'A' power amp, P307A preamplifier and of course the subject of this review, the CD-1.

Although I don't expect Chinese products to better Japanese ones at the high end, the story's different for affordable kit, where the value for money is hard to argue against. No surprise then that the build quality of this £450 machine impressed. The CD-1 has two 'U' sections, a base plate, and a top cover; with a rear section, all made from sheet metal, whilst the front panel is machined from 11.5mm aluminium. The front panel contains a power button (actually, a standby button as the power switch is on the rear panel), a centrally mounted disc drawer with its display directly beneath, and on the right the eject/stop, play/pause, previous track and next track buttons all flush mounted. Around the back is a power switch, IEC power inlet, electrical and optical digital outputs plus a pair of high quality, gold plated RCA analogue outputs.

Inside the player, on the left is the power supply, while the centre section holds the Philips transport, which is an LI210/63 loader with a VAM 1202/2LD 3 beam pickup, and one of the few dedicated CD only transports still in production. Down the right hand side is a single circuit board containing the control electronics, digital decoder IC, in this case a Philips SAA 7327H, and a Burr Brown PCM1738E DAC. The analogue outputs comprise four Burr Brown OPA604AP op-amps with a pair of OPA2134PA op-amps, all socketed allowing for easy upgrading and tuning for tweakers. The output stage is full of Nichicon capacitors including several Gold Tune audiophile caps. At this price point, the internals of this player are exceptional and it would suggest that the only place where Usher have saved any money is in the casing, the rest of this player containing very high quality components.

Mention must be made of the remote control, which is a huge, hewn-from-a-billet-of-aluminium device, which bears a striking resemblance to the Shanling CD-T80 unit. This sort of remote would usually grace something with either Krell or Mark Levinson on the front panel, so at this price, it's unheard of. Bravo to Usher for realizing that this is the part of the player most users will have the most interaction with.

SOUND QUALITY

Out of the box I found this player dynamically flat and lifeless, but this is not unusual for a brand new CD player, and sure enough things started to improve as I ran the player in. I used the IsoTek burn-in disc, which effectively halves the burn-in time, and after three days of running the player on track two of this disc, which is a full range burn-in signal,
performance started to level out, with little further improvement after a further day of running. Usually this would mean you’d need six days of continual burn-in to truly hear its best. I also found that simply replacing the standard IEC mains cable with a budget aftermarket item—in this case an IsoTek Premium—yielded a performance improvement completely out of proportion with the modest £55 cost. It’s rare for the improvement to be as great as it was in this case. I also tried Townshend Isolda DCT-100 and Chord Chameleon Silver Plus audio interconnects, eventually opting for the latter’s slightly leaner, drier sound, which suited this player more.

Duly run in and equipped with decent cabling, the Usher CD-1’s sound was hugely improved. The Burr Brown PCM1738 DAC fitted, when used correctly, is capable of superb sonics, and clearly the Usher team knew what it was doing as the soundstage on this player leapt away from the confines of the speakers and proceeded to fill the front of my listening room. There was a great sense of space on Brenda Russell’s ‘Walkin in New York’ from ‘Paris Rain’ (Hidden Beach EK62138). This is an outstanding recording, and the CD-1 allowed it to speak for itself, with Brenda Russell’s lead vocal standing way in front of the plane of the speakers, with a very good sense of layering back through the musicians to the rear of the stage. Laterally, on ‘She’s In Love’ you can clearly place the acoustic guitar outside the outer edge of the left hand speaker, whilst the outer edges of the studio could be easily located with clear ambient information coming from far beyond the speakers’ outer edges, regardless of whether my reference Vantages or Hyperion HPS-938s were used. Whilst I felt the Shanling CD-T80 captured the sense of space around the musicians a little better than the CD-1, it also costs £200 more...

Bass was superb for something with such a modest price tag. Not only was it well extended, but also deftly proportioned, showing no signs of being overblown. Rather, it exposed the subtle textures between a bass guitar and a synth bass, whilst the dynamics of the kick drum—though not in the same league as the formidable £4,000 CDT-300—still carried a power which could be felt in your chest. Vocals were again excellent, and wouldn’t disgrace a player at twice the price. Transparent and effortless, there was little sense of either lower midrange congestion or, all too often heard on lower cost players, upper midrange forwardness. Instead the midrange offered fine balance, capturing the subtle inflections and timing shifts of Brenda Russell’s vocals, pulling the listener into the musical event in a far more convincing manner.

In an effort to provoke some misbehaviour from this player I switched to Mark Shreeve’s ‘Crash Head’ (Centaur CENCD 007), a high energy electronic recording right on the edge of being spitty, hard and aggressive. The CD-1 handled itself with aplomb, allowing the delicacy and detail of the lead synthesiser line to come through, whilst avoiding any overt hardening or forwardness. This is not to say it was polite; instead it showed an excellent blend of balance...
shadow audio :)
and speed, allowing you to hear the transient and attack of each note without undue emphasis or exaggeration.

I did find that textural information was not brought out as fully as it could have been, blurring the respective timbres of different keyboards used a bit, but it was good at this price point. This player also surpassed my expectation when it came to intelligibility throughout the frequency range, allowing independent threads to be picked out and followed without losing coherence across the whole piece. It was very easy to focus on the behaviour of a single instrument despite the myriad complex happenings around it.

Dynamically, I found this player excellent for its price, and good in absolute terms, whilst on tracks like 'Graveraver' from Mark Shreeve’s 'Collide' (Champagne Lake Productions CLPCD001), the break from a single keyboard and bass guitar to the whole band playing in a huge crescendo lacked the jump-out-of-your-seat impact found from truly high end players, but it still came in with considerable energy and drive, and could in no way be described as overly polite and restrained. Microdynamic inflection was captured very well, allowing subtle variations in key velocity to be heard clearly.

CONCLUSION

I can think of no greater complement to pay this player than to say I was very happy to listen to it even with a pair of £4,000-plus machines at my disposal in my listening room. Whilst it lacked a little in dynamics and atmosphere in outright terms, at £450 the Usher CD-1's performance is excellent - and so it comes heartily recommended.

CHINESE CRACKERS

In my view, the performance of some modern budget CD players has evolved to a point where even some high end players from ten to fifteen years ago would find it hard to compete. A prime example of this is the Inca Design Katana, in both standard and SE guise. This player used a raft of high end components in an RFI and EMI shielded chassis including a VAM 1202 transport, mounted on a massive copper base, a fully shielded mains transformer, with both balanced and single ended outputs. This player offered a highly solid bass performance with exceptional transparency throughout its midrange, a smooth and open top end and imaging which would do a player at quadruple its price proud. With super build, a radical, original design and decent transport which can supply the very finest DAC's with digits, the Katana is a formidable player. With the SE model and its redesigned power supply and output stage, performance is lifted still further.

Also hailed from the Far East is a firm favourite here at HFW, the Shanling CD-T80. This has a fine feature count, once again using the Philips CDM 12.10 transport, not only a fully encapsulated power transformer, but a fully shielded digital transport, something I’ve not seen in a sub-£2,000 player before. Electronically the player uses a Crystal Semiconductor CS8420 upsampler with Burr Brown PCM 1738 DAC, as used in the likes of the Musical Fidelity Tri Vista 21 DAC. The output stage is a valve design with a pair of BB EPA 2604 opamps followed by a pair of 6H3P triodes. This formidable component list is put to good use with beautifully open high frequencies, a bass response almost subterranean in its extension, and a vocal range which is impressive at any price point, let alone the Shanling’s £650.

MEASURED PERFORMANCE

The Usher’s frequency response extends smoothly from 2Hz all the way up to 21kHz our measurements show, and you can see there’s little variation up or down from the median 0dB value in our analysis. So this player should sound balanced tonally, without the warmth of some or sharpness of others.

At high music level, distortion was low at 0.001%. At -30dB - a typical average music level - there was only a small rise, to 0.005%. This almost matches the best players available, which get to 0.004% or so. Down at -60dB things held up well, a figure of 0.22% helping to produce a good EIAJ dynamic range value of 111dB, again up with the best. Output measured a healthy 2.5V and channel separation was high.

The CD-1 measured very well in all areas. It is a textbook design that should sound smooth and well balanced. NK

Frequency response (-1dB)

<table>
<thead>
<tr>
<th>CD</th>
<th>2Hz - 21kHz</th>
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<tr>
<td>Distortion</td>
<td>CD</td>
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<td>0dB</td>
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VERDICT

Truly accomplished sonics and excellent build make this an excellent budget CD spinner, but it faces stiff competition all the same.

USHER CD-1

£450

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BEAUTIFULLY ENGINEERED SOUND

Convus SINGLE CHANNEL AMPLIFIER  Hydra SLAVE AMPLIFIER  Tucano STEREO AMPLIFIER  Cygnus ADVANCED PRE-AMPLIFIER
Small things are big in Japan, and audio is a case in point. Since the Aurex microsystem of the late seventies, Nipponese names have been responsible for some cracking bits of kit, and Teac is one of the greatest exponents. Dominic Todd sounds out the new CR-H255 DAB miniature...

Let's face it; you don't buy a microsystem for the ultimate audio experience. That said, those of us used to true high fidelity often want something a step or three up from a boombox for another area of the home, away from our main systems. It's to this market that Teac have been successfully selling their range of micro systems for many years. Take a look at the new CR-H255 and it's not hard to see why they've been so successful. For just £260 or thereabouts, you can secure a well-made and compact unit with a 25W amp, CD player and DAB/FM/AM tuner. Best of all, the sound quality will have some pretension towards hi-fi. Take a look inside and you're hardly going to be blown away by the quality of componentry, but that's hardly the point. The key fact is that the basics such as power supply, output capacitors and heatsinks are of a decent quality and far eclipse those of the similarly priced 'flashing light' brigade.

Although the amp is pretty puny, it is (as we'll find later) powerful enough and it comes with a comprehensive selection of socketry. Around the back you'll find proper 4mm binding posts for the speakers, twin tape loops and a third auxiliary input. Better still in these iPod days, the front panel houses a 3.5mm input. More unusual, but still of use for some is a USB socket that allows recording or playback to or from an MP3 flash drive. Finally, there's even an optical output for digital recording, which brings us nicely around the CR-H255's crowning feature; the DAB tuner. Buyers of this type of system often listen to a good deal of radio, and the lack of a digital version had proved to be a sales weakness. Teac have now addressed this but, thoughtfully, left the original RDS FM and AM tuners intact. With a large and clear display, the result is a convenient and flexible tuner that offers everything you could want from radio.

Predictably, the CD section uses a CD-ROM mechanism and basic 1bit DAC. That mechanism does at least allow it play CD-RW, MP3 and WMA discs. With the USB, RCA phono and optical outputs, there are also an impressive three methods of recording from said CDs.

What else? Well, Teac includes a full remote control that's comprehensive enough to put more expensive models to shame. It's even flexible enough to control the file selection from your plug in flash MP3 player. The display is dimmable and there is a selection of timer settings. Perhaps the most interesting of these allows for a timed recording using the USB connection – very handy for missed radio programs.

Given the budget price, build quality is impressive. The small casing is well braced and the lid, whilst being thin, is at least well damped. The front panel is finished in real aluminium, and all the controls have a well-weighted and solid feel to them. In short, you wouldn't be unhappy with the quality if you'd paid twice
Quad II Classic Valve Amplifier

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"The II-Classic is so much more rewarding a product than even a mint original that I almost feel like a heretic, or a traitor"

Ken Kessler, Hi-Fi News

Quad Electroacoustics Ltd., IAG House, Sovereign Court, Huntingdon PE29 6XU, Tel 0845 4580011, www.quad-hifi.co.uk
the Teac's asking price. Whether this quality translates to the sound is the next test...

**SOUND QUALITY**

With the Teac plugged into a pair of Wharfedale Diamond 8.1s I began by listening to the CD player. With The Propellerheads' and Shirley Bassey's 'History Repeating', I was pleased to be greeted by an open and fairly dynamic sound. Clearly, the tiny amplifier output wasn't going to be an issue -- at least in my medium sized listening room. Unsurprisingly, there wasn't a great deal of truly deep bass, but what there was was taut, well controlled and blessed with decent pace. The background vocals were clearly depicted, with a level of layering you wouldn't normally associate with an all-in-one of this price. The treble was perhaps a touch bright and mechanical sounding by separates standards, but this never proved to be a serious issue. Whilst hardly leaping into the room, Bassey's vocals were well separated from the mix and clearly defined.

Moving to Ian Dury's 'My Old Man', I was similarly impressed by the Teac's level of listener involvement. Although the percussion lacked weight, its crisp bite gave it a sense of drive without being unreleanting. The guitar was extremely well resolved whilst the brass sounded short of depth. Nevertheless, as a whole the piece was cohesive and enjoyable to listen to in a manner that even some separate systems can struggle to match.

I wasn't expecting thunderous dynamics from Mussorgsky's 'Night on Bald Mountain', but at least the Teac produced some fire from the piece's introduction. In a modest way, the CR-H255 bowled through the piece, faithfully reproducing the strings' timbre and creating a sense of motion from the rolling timpani. Frequency extremes saw a loss of focus and the brass did lack bite, but over all, the piece proved just as enjoyable to listen to as the others had.

Perhaps this was a mistake, but my next source of choice was the FM tuner. Without a doubt, this proved the star of the show with Elvis Costello's 'Veronica' on Radio 2 sounding wonderfully spacious and upbeat. Whilst the bass was still on the lightweight side, the treble breathed in a manner that eluded the CD playback and, as we'll see, was completely alien to the DAB section. Vocals were well texted, instruments focused and the whole song had a sense of life that made the other sources sound compressed. Which, of course, is exactly what DAB is. At 128kbps, the otherwise brilliant Radio 6 couldn't help but sound rather shut-in after the FM experience.

It wasn't just the staging that suffered. In typical compressed style, treble information lost a good degree of clarity and became indistinct and splashy. Not a particularly good result, then, but to be fair to Teac the performance with DAB was still on a par with its rivals. It's also worth pointing out that if you only ever listen to speech from, say Radio 4 or 5 Live, then you'll be quite happy with the clarity. Listen to a live studio session as I did, though, and there's no way you could ever imagine yourself being there -- a shame.

**CONCLUSION**

It's quite a paradox that what is meant to be the real selling point of this microsystem, its DAB tuner, is actually its most disappointing feature. The sound is rather compressed and splashy, even by DAB's usual poor standards. Nevertheless, it's exactly the sort of sound you'll find from rivals, and until you get to the better separate tuners from the likes of Denon and Cambridge Audio this is as good as it gets. By contrast, the FM performance is genuinely impressive and the CD is better than expected, too. Combine this with a thoughtful selection of features, excellent connectivity and sturdy build quality, and it's hard not to worry about the baby Teac...

"it's hard not to warm to the baby Teac..."

or 5 Live, then you'll be quite happy with the clarity. Listen to a live studio session as I did, though, and there's no way you could ever imagine yourself being there -- a shame.

**VERDICT**

Super all-rounder with an impressive blend of build, features and FM sound; only DAB performance lets it down.

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- FM and CD sound
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- connectivity

**AGAINST**

- disappointing DAB

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OCTOBER 2006 HI-FI WORLD

69
Global Superpower

This amplifier is no mere retro styling exercise, but the fourth update of a classic McIntosh originally launched in 1961. As such, it’s not a new design, but then again it is.

Unlike the earlier Commemorative version released in the nineteen nineties (see www.mc275.com for more on this), this one doesn’t aim to mimic the original. It has a circuit board instead of hard wiring, and employs good quality modern components. There are solid-state rectifiers in the power supply, instead of bulky valves, a distinguishing point from the retro Quad II-fortys I use regularly, but like Quad, McIntosh use a choke (thankfully).

Although McIntosh’s unique output stage was patented in 1949, I view it as very modern in its topology and design aims. It gets maximum power from a valve, as well as minimum distortion through the application of feedback. This is no golden oldie, like the many single-ended triode (SETs) designs floating around, nor is it a conventional post-war topology like the Quads (okay, the cathodes are in the primary, so it is just like Quads!). McIntosh came up with a revolutionary circuit, but it relies on complex output transformers of dump truck proportions that must be expensive to make.

That’s the context of the design, and there are many implications. The MC275 gets massive amounts of power from just four KT88s so it drives them heavily, mostly in Class B with feedback keeping distortion in check. That’s a very modern way of doing things. The highly linear KT88s respond wonderfully to all this: there is no sign of crossover distortion, for example. As valve amps go it seemingly doesn’t get better, but I can tell you what an amplifier like this sounds like without switching it on! Not in detail admittedly, but in outline.

KT88s give a beautifully clean sound when run properly, one that you could say is reminiscent of solid-state in that it has quite a shiny sound, well lit across the midband. By the way, I’m glad the MC275 avoids 6550s which can sound a bit coarse by comparison. With massive power of 90W and a good damping factor, loudspeaker matching isn’t an issue and, I can assure you, valve amps like this usually have bass drive that leaves transistor amps gasping. The Audio Research D150 we reviewed recently was just such a beast: it had
sledgehammer bass, quite beyond 'yer average transistor'. I sat someone down in front of 'our' Quads the other day; he had never heard valve amps. His first comment was ‘how powerful are they?’ He couldn’t believe a 40W amplifier had such dynamics. The 275’s 90W eclipses the Quads in this respect and I know it will be obvious to any listener as strong, well controlled bass.

Whilst most people want what valves do well, not all of them want what they do badly: soft bass and warm treble are common criticisms, and there’s no doubt many of today’s designs recreate this dated presentation effectively. The McIntosh 275 delivers full power right up to 20kHz and right down to 40Hz, with absolutely no trouble at all. It sails past other valve amps here. It also clips hard, like any solid-state amp with good amounts of feedback. Feedback is responsible for the rather tight, dry presentation of solid-state amps, curtailing their fluidity and sense of atmosphere.

The 275 will have a tighter, drier sound than most valve amps, especially SETs or those with no feedback. It will lack their romantic sound, it will likely not have their sense of depth, trading these properties for drive, bass control and dynamics. But you will still get what valves guarantee: the ability to listen for hours on end without fatigue, plus liquid clarity and superb sound staging. I’ve listened to many, many KT88 based amplifiers, including our own World Audio Design KAT88 in the past and, today and nearly everyday, Quad II-forty power amplifiers. The KT88 is a great audio output valve; it was designed specifically for audio after all. McIntosh’s 275 gets more from this valve than any other design I’ve ever encountered, using the cleverest circuitry and output transformers.

Helping it do this are a battery of small signal valves, I2AT7s and I2AX7s. There’s much talk on Audio Karma (www.audiokarma.org), which has a McIntosh forum, about tube costs, but KT88s (and the rest) are not expensive at around £40 a pop. If you want matched pairs then, say £90 or thereabouts, and for quads £200. You can get original (NOS) GECs but they’re up to £200 each nowadays, a price to turn transistor makers green! In theory if a valve goes you can replace it alone and the 275 will compensate for any change in transconductance. This may work well if the replacement valve is of the same make and type as the others. Otherwise matched pairs are best, or two matched pairs if you want to ensure both channels sound identical.

This power amplifier has both conventional unbalanced (phono sockets) and balanced (gold plated XLR) inputs. The basic amplifier is unbalanced the Audio Karma news group suggests, but in the circuit diagram it looks all-balanced to me, from a fully balanced valve input stage, so it is worth running the 275 balanced. Happily, McIntosh carry out unbalanced-to-balanced input conversion through a valve, not a dedicated integrated circuit, of which there are a zillion nowadays - all horrid. Because balanced goes in one valve down the line sensitivity is low and you’ll need a good preamp with plenty of gain to run a balanced line.

As this transfers the gain requirement to the preamp, whether it sounds better depends somewhat upon the preamp. You could conceivably run a CD player with balanced output and adjustable volume straight in, but McIntosh have a dedicated preamp in the C220, price £3,300. Croft can supply a sweet sounding unit for £600 or so too, for those strapped for cash.

I used our Quad QC twenty four preamp, which uses just one valve, driving the unbalanced input, which will extinguish, an unusual feature. It lessens the current draw - a neat idea - making for a cooler and smaller mains tranny. McIntosh use a simple stainless steel, folded sheet chassis which is non-magnetic, a property that improves sonics.

**SOUND QUALITY**

Switch on is drama-free. As the floorboards quiver I often wonder whether I will find myself in the next street at this moment with my own monster, but the McIntosh is fearless. My expectation of sound quality wasn’t too far from the mark, I found. It’s quite hard etched in delivery against what I am used to - and even the Quads. But that also makes it sound faster and more incisive, with fantastic grip against most of its peers. Celine Dion’s ‘I’m Alive’ was rock-solid in its metronomic timing from the opening bar; I was left in "it’s a fascinating presentation for a valve amp, being poles apart from most else on the market..."
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Mains: Vertex AQ, Supports: Arcola, Stands Unique, Vertex AQ.
MEASURED PERFORMANCE

Power output measured a massive 90W into both 4 and 8 ohms, showing the shorter 4ohm winding section is sufficiently well coupled to give the same output as 8ohm section (I did not measure the maximally coupled 16ohm section). It's normal to get 40W maximum out of KT88s in auto-bias push-pull, and around 70W in fixed bias, which necessitates bias adjustment. So McIntosh's unique circuit and output transformers are impressively effective; the 275 swings real power from KT88s, much more than you'll get anywhere else - and you don't have to adjust bias. It got even better when measuring distortion. Distortion levels were as low as they get from valve amps, measuring around 0.02% at 1W and 0.12% at full output. These figures did not deteriorate much at high or low frequencies, the transformers managing much better than any other amp. This is good news for classical listeners. Strings seem to bring out the worst in any product that distorts, but the MC275 shone here as well. It animated the strings of the Royal Philharmonic playing Wagner's Lohengrin, injecting a level of vitality I hadn't expected. Horns sounded crisp but resonant, rasping out strongly. The 275 makes for a vivid performance, yet one that stays clean and well ordered.

12in, 45rpm single if you can) pounded out with the strength and assurance of a steam hammer. This amplifier makes most others sound weak kneed; it's a desperate listen at times, as it comes over as viscerally gripping but also powerful beyond belief if you turn the wick up a little. One listener said that the 275 always sounds super clean, and this is the case, but it isn't sterile or flat, so you can wick it up and up without any sign of stress - just as measurement showed.

This is good news for classical listeners. Strings seem to bring out the worst in any product that distorts, but the MC275 shone here as well. It animated the strings of the Royal Philharmonic playing Wagner's Lohengrin, injecting a level of vitality I hadn't expected. Horns sounded crisp but resonant, rasping out strongly. The 275 makes for a vivid performance, yet one that stays clean and well ordered.

It is conspicuously more revealing than I am used to as well; Naim would be fascinated by this amplifier's presentation, as it really separates out instruments and ruthlessly exposes them on an open stage, much like a high resolution solid-state amplifier. Performances become clearer but also a trifle more stark; it's a fascinating presentation for a valve amp, being poles apart from easy going SETs especially, but also from most else on the market today as well. Classical lovers will luxuriate in the richness and complexity of an orchestra, but also the succinct clarity of individual instruments.

CONCLUSION

As some readers may have discerned, I am a fully paid up valve amp enthusiast - but it's still the case that as wonderful as they are, drawbacks exist. McIntosh's MC275 overcomes them all at a sweep. In so doing it goes to the front of the queue in my estimation. It hasn't the beguilingly expansive presentation of my hand fettled, zero-feedback 300B amplifier, but boy does the MC275 go for the jugular when it comes to fun! Anyone would enjoy listening to music from an amplifier like this I feel, I certainly did. It's undoubtedly the valve amplifier for all seasons. If you'd like to hear what valves can do, but are scared of the cost and drawbacks, this is the one to choose. Technically, it is well judged, well developed and thoroughly effective. Subjectively, it is right on the nail. You could not ask for more.
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I must confess that, until recently, I hadn’t listened to cassette for at least a year, and probably more like two. After a couple of recent house moves, finding the cassettes took some doing, but once I had located the classic eighties ‘Caselogic’ boxes, the results proved well worth the hunt.

Fortunately enough, most of the cassettes I recorded some ten to fifteen years ago were made using a Nakamichi cassette deck with the source being either a Conrad Johnson SD1 (not bad), a Michell GyroDec with RB300 (better) or an SME Model 20 with Series V (still amazingly good). The tapes used were Maxell, TDK or That’s (remember them?). Most were chrome or metal, but the odd ‘super Ferric’ did slip in there in the form of the classic TDK AR-X. Because the cassettes, literally, hadn’t seen the light of day for several years, they were in remarkably good condition, with just one old That’s tape having decided to stick itself together. Yet the greatest pleasure came not from reliving the eighties cassette tape nomenclature and terminology but, perhaps surprisingly, from the listening.

I say “perhaps surprising”, because I’ve always known deep down that cassette can sound decent, even though I never listen to the format and am disappointed whenever I hire a car that still has a cassette deck only. Oddly enough, it’s the car industry that has sustained the cassette market for longer than it would have survived on the home front. Buy a new car today, and there’s still about a one in five chance that it will have a cassette player. Just a couple of years ago, this was more like 50/50. Still, I digress, with the Akai GX95 wired up and fed with quality tapes and recordings, I was transported back to another era. Yes, there was some tape hiss, but the fluidity, depth and sheer scale of sound was leagues ahead of any MP3 player or, dare I say it, even CD. Pitch stability, often the bane of cassette, was rock solid with this particular deck, and there was not a trace of the dreaded wow and flutter.

You may not be surprised to hear of the virtues of cassette, but what may come as unexpected is just how many new cassette decks are still being sold. True, vinyl has now convincingly outlasted cassette, but there are still some fine new production line some years ago, and there are many more record players or, dare I say it, even CD. Pitch stability, often the bane of cassette, was rock solid with this particular deck, and there was not a trace of the dreaded wow and flutter.

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Finally, there’s the ‘twin’. Twin decks were always slightly frowned upon by the hi-fi fraternity as they never quite matched the quality of their single brethren. One brand that made a better job than most, though, was Denon. Check out the Denon website and you’ll see that, amazingly for such a trendy company, they still market the DRW-695 twin deck. From memory this is a pretty decent deck and bound to be better than the equivalent Sony and Pioneer twins that still linger in the price lists.

Whilst tape can never hope to match the convenience of MP3, it can still put in a surprisingly good performance at home, in the car or, should you be lucky enough to have a working Sony Pro Walkman, on the move. If you already have cassettes, then you probably have a decent deck - most that didn’t will have chucked their tapes away years ago. For the rest of us, we’ll probably remember the format, still covert a Dragon or CR7 - and then pop into the nearest Apple Store to buy an iPod.
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"BBC Governors are probably blissfully unaware of the DAB audio quality problems..."

steven green

As many of you will already know, or at least suspected, the BBC reduced the bit rate of Radio 3 on DAB from 192kbps to 160kbps in July. When they first made the change, I actually thought they'd made a mistake and they'd revert back to 192kbps in a few days' time — even the BBC, with its diabolical track record on DAB, wouldn't do anything as stupid as this, I thought... I was wrong.

The justification that the BBC gave for making the change, in the form of an email/letter that was sent to listeners who complained, was that the BBC had been covering lots of sporting events over the summer (although the list of sporting events they mentioned had virtually all finished by the time the change was made), so they had decided to take 32kbps of bandwidth from Radio 3 and give it to Radio 5 Sports Extra, which would allow the latter to transmit a looping advert for the format of an email/letter that was sent to complainants, and they admitted: "We have discovered that during July the level on DAB for Radio 3 was unnecessarily increased which caused distortion and loss of sound quality," and that they'd now corrected the problem.

That explanation is simply nonsense. The problem that they had corrected, and which was obvious to anybody with even a slight understanding of how the MP2 audio codec works and performs, was that they had been transmitting at 160kbps in 'discrete stereo' mode (true stereo) for the previous two to three weeks, when at bit rates below 192kbps you have to start using 'joint stereo' mode — at such low bit rates it is preferable to degrade the stereo image in order to provide some improvement in the audio quality, albeit not much of an improvement.

This episode highlights a major problem with the BBC, because BBC executives who don't have an engineering background make decisions that should be made by engineers. Furthermore, the BBC is unregulated with respect to technical issues, which makes it all the more outrageous that poor engineering decisions are being made by non-engineers and the general public has absolutely no redress - the BBC Governors only apparently ever see unresolved programme complaints (taste and decency issues and so forth) that have made it through all of the stages of the complaints appeals process. In contrast, technical complaints cannot even be appealed against - the BBC Governors (i.e. regulators of the BBC) are probably blissfully unaware that there are major problems with the audio quality on DAB!

Despite the BBC's claims that Radio 3's audio quality is "almost indistinguishable" from how it was prior to the reduction in bit rate, it isn't — and I didn't think it sounded very good when it was 192kbps either. At the time of writing, Radio 3 on DAB sounds dull and muffled, with virtually no high frequency response, very poor definition and a rather soulless sound.

However, Radio 3 is still transmitted at 192kbps on Freeview, digital satellite and cable. The best quality digital version of Radio 3 is on satellite, which sounds a lot better than R3 on DAB. R3 on Freeview also doesn't have the problems that are apparent on DAB, but it can sound quite harsh at times. The reason for the difference in sound between the streams on Freeview and satellite will almost certainly be due to the BBC 'transcoding' (decoding followed by re-encoding — a definite no-no with low bit rate compressed audio, and it will only have been done to save a small amount of money... yet another bad engineering decision) the streams en route to the Freeview multiplexer operator. In comparison, the BBC carries out its own uplinking to the satellites, so there's no need to transcode the signals first, so the quality is not degraded.

Having said all that, Radio 3 on FM still sounds much better than any of the digital versions, providing better detail, definition and high frequency response. All I can say is long live Frequency Modulation!®
### KEL84 Valve Amplifier Kit

“The quality that can be gleaned from this amp is a fine introduction to the joys of the valve sound”

The KEL84 features a pair of EL84 valves in Push Pull configuration per channel, providing two channels each 18 Watts into an 8 Ohm load. Available as a 5 input integrated amplifier with ALPS volume control.

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<td>KEL84 built and tested</td>
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### WD88VA Valve Amplifier Kit

“The result is an amplifier that combines majesty, transparency and rhythmic boogie factor with the ability to swing and sing on all types of music”

Often described as a 'sweet sounding' valve, our particular implementation of the KT88 makes sure that it is driven to its ultimate performance. Available as a 35W stereo power amplifier with single input volume control, or as a relay switched integrated with five inputs.

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### Headphone II Valve Amplifier Kit

“Headphone II is a single-ended design with the power pentode wired up in triode configuration for added purity and is as quiet as a mouse”

A beautifully simple stereo headphone amplifier design using Mullard ECL83 valves. It works directly from any source. The circuit uses twin high specification E/I output transformers that can be wired to drive any headphones between 16 to 300 Ohms.

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### WD25A Standmount Speaker Kit

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The aperiodic enclosure offers the bass clarity and definition of a larger closed box, together with the efficiency and easy amplifier load necessary for users of valve amplifiers. Available with SEAS STD soft dome treble unit, or high performance SEAS Excel treble unit.

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<td>WD25A STD kit (pair)</td>
<td>£215</td>
</tr>
<tr>
<td>WD25A XL kit (pair)</td>
<td>£398</td>
</tr>
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</table>

### WD25T Floorstanding Speaker Kit

“The WD25T always sounds crisp and taut, but can ‘rumble’ menacingly giving impressive physicality reminiscent of far larger boxes. Imaging is superb, the midband is also special; it’s very open with masses of detail about the condition of the recording”

Cunningly arranged as an aperiodic enclosure leading to a lower sealed compartment, the WD25T combines the optimum damping of aperiodic loading with the bass extension of a large closed box. Available with STD soft dome or high performance Excel treble units.

Both the WD25 kits are based around a SEAS 26cm (10") paper cone bass unit with an efficiency of 89dB for 1W. The crossover has been developed for an easy drive 6 - 8 Ohm load making the system ideal for all types of amplifiers.

<table>
<thead>
<tr>
<th>Kit Type</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD25T STD kit (pair)</td>
<td>£279</td>
</tr>
<tr>
<td>WD25T XL kit (pair)</td>
<td>£459</td>
</tr>
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"used prices depend solely on the value people put on something, based on hearsay..."

noel keyword

Funny how the notion of 'cheap' has all changed. Long ago I expected the future to be more expensive than the present. Prices always go up, with the same predictability that gravity always makes things go down. Some things never change, or so I thought. Now, everything that once made sense in budget hi-fi has been turned on its head. A brand new DVD player costs £17.97 from Amazon, but if you buy old tat second-hand it will cost more now than it did when new - especially if it is from Quad. These days it is difficult to predict how cheap budget hi-fi may actually be, or even what makes up a budget system.

Once upon a time it comprised something like a Dual turntable, NAD 3020 amplifier and a pair of Wharfedale Diamond speakers. Even if you were short of cash, that was the solution - and the only solution. Sure, you could buy a Trio amp or Garrard turntable, but this was simply moving the chairs around a bit. How things have changed. Now, for very little cash your loudspeakers might come in a removal van, because the internet (ebay) has changed everything. Somewhere, someone wants rid of large loudspeakers inherited from Granddad when he passed away, because they're blocking the hallway. You get a pair of Tannoy GRFs - and a bill from Pickfords.

This is just one development I could not have foreseen in the past, but it has changed the way we see budget hi-fi today. Now, Hi-Fi World readers are happy, even excited, to scour the internet for a rare item on the promise of amazing sound at a bargain price. Some of it is misguided I believe, the reputation of many products becoming hyped by repeated mention on the internet. This underlines the fact that the price of an item depends solely on the value people put on it, and that can at times be based on hearsay. Old cartridges, turntables and arms suffer this most. Units I wouldn't have given much for twenty or more years ago are being 'rediscovered', yet they are likely to sound worse now than then, due to wear and tear over the years, so Heaven knows what it is that their new owners find so attractive!

Or it is based on misunderstandings, for example that the qualities of a mystical item like a Quad ESL-57 can be as easily appreciated as those of a Monitor Audio GS60. In truth the wonders of a '57 can only be heard after a costly service or rebuild, because all are now very old, the partnering equipment must be compatible and the room suitable. With something like this you can easily end up out of pocket and wondering what all the fuss is about. All the same, our Letters pages show that increasing numbers of people are buying enthusiastically, finding that if they don't like what they've bought then there's always another mug willing to make the same mistake.

Generally, no matter how much people like myself might tut-tut, the experience seems to be a good one - and it does have some great aspects. Everyone is a winner. The seller gets paid to have their 'junk' removed, whilst the buyer hopes to pick up an all time classic that when restored will sound fabulous and will gain in value instead of losing it.

Then, of course, we save our heritage and don't needlessly throw things away, so saving the planet (blah...blah). I'm a little sceptical about this last point because no matter how many Tannoy or Garrards we save from the skip, it would make not one jot of difference to output from the world's big CE plants in China, Malaysia and Japan, all turning out cheap DVD players by the zillion. The EU's forthcoming Waste Electrical and Electronic Equipment (WEEE) directive, which comes into force during 2007, will be more effective at coping with this ever-increasing torrent.

Mass manufacture in the Far East is the other major development to affect budget hi-fi. At present we are seeing the latest technology, such as that in a DVD player, being sold at inconceivably low prices. No DVD player ever cost £17.97 after taking manufacturing costs, profit, shipping and retail profit into account. It's either a loss leader or a stock clearance in anticipation of Blu-Ray's arrival, not to mention HD-DVD of course, which has all but arrived. The vicious downward price spiral that now characterises this market, one that really deals in global commodity - no matter what gloss is put on it - is quite different from that of real hi-fi.

All the same, I suspect we could in the near future see real hi-fi from China at prices lower than today's. It wouldn't be difficult to construct a Class D digital amplifier with lightweight switch mode power supply, using surface mount devices, for example. [Sonic Impact T-Amp, anybody? - Ed.] I'm not sure it will sound a whole lot better than a NAD3020 of yesteryear or a Cambridge of today, leaving many of us to find heaven in an elusive bargain from the internet. So happy hunting!
DUKE ELLINGTON
Duke Ellington's Spacemen: The Cosmic Scene
Mosaic
Originally released in 1958, this album features the solo work of Clark Terry on flugelhorn, Paul Gonzales on tenor sax and Jimmy Hamilton on clarinet. Combining both Ellington material (i.e. 'A-Train' and 'Perdido') and covers (i.e. 'Avalon' and 'Early Autumn'), the session was originally recorded at Columbia's legendary 30th Street Studio by Fred Plaut. US-based Mosaic is renowned for its attention to detail when producing CDs, always going one step further to enhance or retain sound quality. Michael Cuscuna, President of Mosaic, explained that the company, "always ignores the LP master tapes because they have compression and/or added echo and/or added highs. We rebuild the album from the original session tapes; the sound is purer and far superior." Mosaic ordered all the session reels as well as the LP master tapes from the original record label. 'In the case of this album, we used the 3-track session reels, rebuilding the LP and matching its edits and then found the additional take of Jones which was issued as a 45 and the only releasable alternate take, 'Body and Soul.'"

Putting the album together from scratch is a painstaking job. Yes, there are occasionally EQ setting notes in old tape boxes to act as a guide but, as Cuscuna said, "they are meaningless with today's equipment. Besides, we always start from scratch, using today's criteria of getting the purest most natural sound with the least amount electronics imposed on it." As for the packaging? The CD (it's unavailable on any other format) uses the original artwork, scanned from a clean copy of the LP and very effective it looks too. The sound quality is delicious - no doubt the original recording session had plenty to do with this, but Mosaic has worked hard to further enhance things. Any jazz fan needs to hear this CD.

ROY BROWN
Good Rockin' Brown
THE DELMORE BROTHERS
Fifty Miles To Travel
Ace
Ace has recently released a series of CDs under the banner 'The King And Deluxe Acetate Series'. That is, all of the recordings are sourced from those label's original acetates which were painstakingly examined in the USA and then carefully shipped, all 53 crates, untouched for 30 years, to the UK for processing. Some of the wartime acetates (made from glass - there was a metal shortage at the time) had previously been destroyed whilst other damaged examples were processed first by Ace. During the '40s, acetates were the principle source for early recordings and still retain the potential for high quality sound sourcing. Even when tape was eventually introduced as a mastering format, many studios mistrusted it. King and Deluxe focused on R&B, country, blues, hillbilly and gospel. Brown represents the R&B genre. His work, here from 1947, was a major influence on rock'n'roll. For example his songs were covered by Elvis Presley. The Delmore Brothers, however, sang hillbilly songs and were great harmonising vocalists that should have tasted the same fame as the Carter Family.

Both CDs represent the first batch of releases from those crates. Examining the contents brought to light unexpected treasures - 17 'lost' acetates from Roy Brown, none of which had ever been heard before. Brown's release is very important for it's early versions of over-dubbing. Tony Rounce, series compiler and archivist for Ace explained, "They recorded tracks leaving gaps for what they wanted to overdub and then played back the final acetate, having the overdubbing instrument play 'live' in the remaining space." Hence, a tenor sax man might, at the same time be both the soloist and be part of the rhythm section. Ace utilise a thorough and careful process during its CD productions which has resulted in excellent productions for these rare works. Considering the sometimes less than ideal original recording conditions and the age of the acetates, Ace's sound quality is remarkable. Several rungs up the ladder from the 78 originals, whose basic shellac format was 'anti-audiophile', to say the least.
TOMMY McCLENNAN
Vol.1 - Whiskey Head Woman
Vol.2 - Cross Cut Saw

Document

Entirely CD-based, Document Records is arguably the most important roots-based record label in the world and contains the world's largest catalogue of vintage blues, jazz, boogie woogie, gospel, spirituals and country music. This CD set was mastered by Paul Swinton (www.frogrecords.com) who believes the secret of a good vintage music CD is the source. Previous McClennan issues were poor, so Swinton endeavoured to source either the original McClennan 78s or a flat transfer on a DAT from examples of horribly rare 78s situated in other parts of the world belonging to top collectors. Swinton's kit includes a Dual CS5000 turntable and Owl valve amp, before the signal's transferred into a 24bit audio card into a PC. He spends most of his time at the source. “It makes a huge difference depending on what stylus and weight you will use, from 20-30g; standard rules say a particular label will benefit from a certain weight. There’s trial and error too.” This can go as far as repairing broken 78s or melting down spare shellac and melting it to repair missing pieces of a 78.

McClennan belonged to the great batch of original blues guitarists, with a gruff voice but full of humour, known for tracks such as 'Cross Cut Saw Blues' and 'Deep Blue Sea Blues'. Listening to these CDs, I'm willing to bet that this set could not have been produced by a mastering engineer at a major studio. You really need years of experience in the blues to be able to 'feel' what's required. The proof's in the listening, which is a bit of a shock - these CDs are so smooth. It's amazing to believe that the track sources were 78s and not acetates. You can almost hear how McClennan shapes his mouth, tongue and lips to accentuate certain words.

IVORY JOE HUNTER
Woo Wee!
GRANDPA JONES FEATURING MERLE TRAVIS
Steppin' Out Kind
Ace

CD fans love Ace and its sound restorers are an independent lot. They have no love of vinyl and on the question of hi-fi, strongly believe that you need to spend 50% of your budget on improving the listening room. Their approach to preserving the sound quality for both of these CDs is interesting, therefore. Ivory Joe Hunter (his real name) tamed rock’n’roll, at his piano, with his velvet-voiced blues. Grandpa Jones, on the other hand, was a consummate country performer and, during the ‘30s and ‘40s was almost solely responsible for keeping the banjo alive as a country instrument. Both artists’ acetates were initially cleaned using the superb Loricaref machine. To transfer the music, the acetates were played on a specially made Pink Triangle adapted for 16” acetates – there are only two of these decks in existence, and Eddie Grant has the other! 16” disks were used to squeeze four or five, three minutes tracks on one side.

The sound was then moved through an old Yamaha CX630 preamp to a PC-based Lynx card with an excellent A-D converter running at 96/24. A digital editor, Sadie (a UK product), took over with the addition of plug-ins called Waves Restoration Suite and Waves EQs. Declicking and dehissing was undertaken by the Cedar Cambridge system. Ace feels this great kit gives them the edge over analogue, “there are certain processes we can do in the digital domain that you just cannot do in analogue such as azimuth correction,” explained Nick Robbins, Ace Mastering Engineer. “For example, at the beginning and the end of playing vinyl, there’s a small angle differential between the left/right hand channel. We can correct this azimuth error during restoration.” Ultimately, this system, alone, can remove 3dB of noise. The final CD results are a triumph - Ace has shown a restorative sensitivity for both the original recordings and our ears.

CONTACTS:
www.acerecords.com
www.document-records.com
www.mosaicrecords.com
No mention of upgrading speaker performance should be complete without guidance on how loudspeakers integrate into rooms. Peter Comeau outlines the steps you should take.

The ear-brain mechanism bases its calculations on the fact that most sources act as a point source and emit sounds as omni-directional radiators. (This doesn't mean that speakers also have to be omni-directional even though it sometimes helps if they are). Unfortunately many speakers on the market today exhibit a very different frequency response and character off-axis, to the sides and above, than they do on-axis as they point towards the listener.

Because room boundaries are reflective the ear-brain tries to correlate the direct and reflected sound as one to form the timbral character of the source or, in our case, speaker(s). Where the off-axis sound is distorted in character compared to the on-axis performance the speaker's character will also tend to sound distorted timbrally or 'colored'. For this reason many specialists advocate putting speakers in a 'dead' area of the room where reflections are minimal, for example with heavy curtains on the walls.

This 'dead-end/live-end' design of listening rooms is an interesting one to explore, especially as it polarises opinions so much. Making the decision is fairly objective and can be ratified by your subjective experience. If you want to hear your speakers sounding exactly as a technical analysis of their frequency response would indicate then put them in non-reflective surroundings, or the 'dead' area of a room. Be prepared, however, to supply four times the amplifying power you might expect to be necessary and don't anticipate a soundstage which is going to be larger or more expansive than the width and height of the speakers themselves. And you will need speakers which have a very tightly controlled and accurate bass performance.

Why should this be so? A lively room will increase the subjective output of a speaker using reflections from rear and side walls to double the power output, and from walls,
Loudspeakers

Floor and ceiling to quadruple apparent Sound Pressure Levels (SPL). There's no magic to this. Take a speaker out into the garden and it will sound small, dynamically lifeless and miniaturized in sonic image scale compared to how it sounds in a typical living room. As for the stereo soundstage effect, just listen to most of your recordings on headphones. Notice how the sound is almost two dimensional, concentrated in the ears or between them. This is because recordings are made with microphone positions and mixed in a way that allows for playback on loudspeakers in real rooms.

Whilst placing speakers at the 'live' end of a room is better for stereo performance, the opposite may be true for larger AV speaker systems. Image localization in a discreet surround sound system is served by cutting down on local reflections. If you are dedicating a room to be a home cinema then reducing the reverberation time by the use of heavy carpets, curtains, soft furnishings and sound absorbers is, generally, the accepted way to go. However if your AV system utilises soft furnishings with which we normally litter our living rooms, there is nothing, I repeat nothing, that you can do about low frequency ones. But all is not lost as there is much you can do to avoid exciting these resonances by positioning speakers or listeners in the 'right' place.

To judge the effect walls and floors have on speaker output, a speaker in open space will radiate all around at bass frequencies. This is called radiating into 4π steradians. Place the speaker on the floor (or against a wall on a tall stand or shelf) and you reduce the space the speaker radiates into by half to 2π steradians with an increase in SPL of 6dB. Put a speaker on the floor and against a wall and SPL is increased by 12dB, and in a corner low frequency SPL increases by 18dB.

For most of us the closest we will get to using these low frequency boost factors will be by placing a speaker against a wall, either on a stand or shelf. Besides increasing the output gradually below 300Hz, and markedly below 100Hz, this will also drive the modes down the dimension of the room facing the speaker. Box loudspeakers are pressure generating devices and, as such, will couple to the room modes where pressure is at a peak. And pressure is at a peak near any room boundary (if you think about it air particle velocity will always be at a minimum at a reflecting surface and pressure at a maximum).

The outcome of this is that moving a speaker closer to a rear wall will increase bass output and also couple strongly to room modes based on the dimension of the room which the speaker is facing. Conversely moving the speaker away from the wall will reduce bass output and couple less strongly to room modes. There is your first method of control over your speaker's bass performance, and most speakers can be balanced between bass and midrange just by moving a speaker nearer or further away from a rear wall.

Few of us, however, can keep speakers away from both rear and side walls. Don't forget that the same discipline fits a speaker close to a side wall as it does to a rear wall. So in this position the speaker is going to couple to the mode across the room as well as down the room. If the bass unit is placed low down on a pair of floor standing speakers then the height modes in the room will be excited as well. Can you see the potential for problems in small rooms? It is hardly surprising that smaller speakers with limited bass output, mounted on tall stands or wall brackets, are often preferred by those with smaller rooms. If you do have a long room and suffer from bass problems try putting the speakers along the long wall, facing across the room, to keep them away from the effect of having nearby side walls and thus couple to fewer

First room mode down length of room gives high pressure areas at each boundary. Speaker couples strongly to this mode, as do the listener's ears.
CALCULATING ROOM MODES

First of all it is instrumental to find out which modes in your room you are likely to fall foul of. To do this you can either measure your room or use a test CD which has individual low frequency tracks for analysis. The major modes are due to reflections between parallel walls down the length, across the width and up the height of the room. To calculate these modes use the formula \( f = \frac{v}{2d} \times 2 \). Working in metres the velocity of sound is 345 m/s. So the dominant fundamental length frequency of a 5m long room is 345/10 = 34.5 Hz. There will be modes at multiples of this frequency too, thus 68, 103, 138, 172 Hz and so on, though due to absorbency by objects in the room these modes will diminish in intensity as the frequency increases. But don't stop there; you also need to add the modes from the width dimension, and then the modes from the height dimension. There are further modes due to tangential reflections across all four walls and oblique modes due to reflections that circulate the room, but these usually die out quickly due to absorbents in the room.

Once you have finished calculating the major room modes based on length, width and height it is time to discover which of these are causing a problem. This is where a test CD with individual bands from the width dimension, and then the modes from the height dimension. There are further modes due to absorbency by objects in the room these modes will diminish in intensity as the frequency increases. But don't stop there; you also need to add the modes from the width dimension, and then the modes from the height dimension. There are further modes due to tangential reflections across all four walls and oblique modes due to reflections that circulate the room, but these usually die out quickly due to absorbents in the room.

The modes you have calculated will all be 'driven' by putting a loudspeaker in a corner. This can be quite useful if you have a speaker balanced to suit corner 'drive' as you will 'hit' every room mode and this can result in an unevenly tempered bass performance. However putting a speaker in the room corner will increase its output by a factor of 18dB and very few speakers are balanced with such a light bass performance except the for the specific requirements of corner horns.

Moving the chair away from the rear wall shifts the listener into the low pressure area of the second, possibly troublesome, room mode.

You can also move away from prominent room modes by adjusting the seating position. Consider what happens where you have speakers up against a wall at one end of the room and a chair against the wall at the other end of the room. Not only are the speakers coupling to the room modes at a high pressure point but you are sitting at a high pressure point too. In our calculation of room modes we took, as an example, a 5 m room with a dominant fundamental mode of 34Hz. Now sitting in a strong 34Hz mode will not trouble most listeners, in fact organ enthusiasts might well be delighted. But the other modes at 68Hz and 103Hz will certainly not go unnoticed. If these cause problems then move the seating position a third of the way down the room where you will be at, or close to, a pressure null for these frequencies.

LOUDSPEAKER TYPES

Typically the problems of speakers in rooms is not so much the fault of the room itself but that of the speaker. The worst type of room for encouraging bass problems is the cuboid room where the side modes are close to, or identical to, the length modes. Similarly a room which has the same dimension of width to height will encourage obvious room mode emphasis to the bass.

Problem speaker types are those which encourage resonance in order to realise an apparent subjectively powerful bass output. Chief amongst these are bass reflex and quarter wave types, but you cannot rule out the closed box either. Wherever the designer has chosen to provide an 'impressive' bass performance then you can expect bass problems in some rooms. Take the bass reflex speaker. Here the drive unit is exciting a resonance in the box caused by the springiness of the volume of air in the box and the mass of the plug of air in the port. If the system is designed optimally for accurate bass performance then the Q of the resonance will be such that it is under control of the drive unit and, therefore, the amplifier. However designers have a predilection to boost bass output by raising the Q and allowing the resonance to 'ring'. Combined with an in-room resonance the bass output, whilst initially impressive, can quickly begin to swamp the midrange output of the speaker and prove tiresome and annoying to listen to. Such bass performance is characterised by undue emphasis to certain notes of bass instruments and a lack of definition in this area.

Quarter wave designs encourage a similar mode to room modes, but internal to the speaker. The box is arranged as a tall column with the drive unit at one end and an open ended 'port' at the other. Like an organ pipe this arrangement will resonate strongly at a frequency where the column is a quarter of the wavelength (unlike a room which has two reflectitive ends the column has an open end). There will also be further modes at multiples of this frequency, again like the room modes, though clever design can ameliorate these. Quarter wave designs are often used where the output of a so-called full range driver needs bolstering below the lower midrange area where the output of the drive unit is falling rapidly. You can imagine what happens where the internal column modes coincide with room modes. Usually careful placement of Quarter Wave designs is required in a room to avoid these problems.

Transmission Line speakers are a special version of a quarter wave design with an extended, folded column to lower the fundamental mode and extra damping to control the upper modes. With a long transmission line the strongest mode is usually at too low a frequency to disturb listeners and is often impressive in intensity where it hits room modes. In fact the 'vent' of a Transmission Line speaker is often mounted at floor level to couple strongly to the floor to ceiling modes. Smaller TL speakers often fall between quarter wave and reflex operation and should be critically over-damped to avoid resonance problems.

One of the ways that designers sometimes resort to in order to ensure a balanced Sound Pressure Level in the room is to endeavour to couple to as many room modes as possible. There is considerable evidence to show that coupling to the majority of room modes in larger rooms will help provide a full, balanced and articulate bass performance by avoiding the gaps between room modes that are...
coupled to selectively by speakers which are positioned in free space. Designing a floor standing speaker so that it couples to both floor and rear wall works very well providing that the designer allows for the increase in bass output by dailing in a falling anechoic low frequency alignment below 300Hz.

An alternative approach is to design for free space. Here the designer has to take into account the transition from fpi radiation at low frequencies to 2pi radiation once the frequency increases to a point where the wavelength is less than the baffle width. This is the so-called ‘baffle step’ and marks an area where there is a gradual increase in output of the drivers and a corresponding transition some designers attempt to realise an omni-directional speaker by using multiple drive units at angles round the speaker or mirrors of the mid and treble drivers on the rear of the speakers. Because of the lobing of conventional drivers at increasing frequency not all such attempts are successful, but a true omni-directional performance may be realised with drive unit designs such as the spherical radiator of the MBL 101e speakers featured in our June issue. For these types of speakers you need to arrange them to be between 0.8 and 1 metre from the nearest wall to make sure that sound reflections arrive at the ear over 5mS later than the direct sound so as not to integrate or disturb the character of the speaker.

There is another class of speakers, however, which exhibit few of these problems and have the potential to fit into rooms in a better way. These are the velocity generators as distinct from the pressure drivers of the box loudspeaker class. Better known amongst these are the panel loudspeakers such as electro-static types but, in fact, any dipole loudspeaker (as long as it is a dipole over the whole frequency range) is a velocity generator.

As we mentioned, at room boundaries pressure is at a maximum and velocity is at a minimum. You can therefore expect a dipole to couple poorly to room modes at room boundaries. In addition a true dipole has minimum sound output at its sides. So you can get excellent results by placing a dipole two thirds of the way down a room near a side wall. At this distance down the room you are still far enough removed from coupling to the fundamental room resonance and its odd multiples. Exactly at one third you will couple to the even order modes but, even here, the excitation will be less as the total radiated power of a dipole is 1/3rd lower than a monopole box speaker for a given SPL.

This gives panel speakers their unique bass clarity and accurate transient performance in rooms. Initially it is a bit of a shock not to hear the high pressure impact that box speakers generate in a room but, once you get used to the change in balance, dipole speakers have a lot to offer those who have rooms big enough to accommodate them.

**STEPS YOU CAN TAKE**

So far we have just looked at the low frequency region where wavelengths are of similar scale to room dimensions as this is where the main problems lie. We have also considered the room boundaries to be solid, but this is rarely the case in real rooms. For example plasterboard ceilings are very ‘leaky’ to low frequencies, as anyone who lives above a student flat will testify! Similarly internal stud walls and windows, especially large sliding glass doors, let low frequencies pass out of the room and will damp low frequency room modes. Solid walls and concrete floors are the true reflectors. Just adding a wooden plank floor supported on joists can often solve room boom problems as a result.

Above this region is a transition area where the wavelengths become too small to fall into the simple room dimension modal excitation model and, instead, are modified by diffusion and diffraction. This transition typically occurs between 100 – 200Hz in large rooms but can be higher in smaller rooms. As a result small rooms are most problematic from the more audible, and troubling, room boom modes. In the upper bass regions you can start to add acoustic resistances to control resonances. Typically large pieces of soft furnishings, for example leather sofas and large bookcases stuffed with books (or, more usefully, LPs) will help. At high frequencies usually along side walls, to control annoying reflections.

As always, with anything to do with acoustics, cavities of all sorts are to be avoided. Putting speakers deep in alcoves either side of a fireplace is asking for trouble as the dimensions of most alcoves ensure that they have strong upper bass modes. Similarly window bays often cause problems unless they are wide and shallow. For good stereo performance it is certainly ideal to place the speakers symmetrically in a room so that each generates near-identical reflections from nearby walls and thus has the same timbral character. Clearly experimentation in positioning is the order of the day.

And that is the only conclusion we can comfortably reach – despite all the theory and all the calculations, the real answer to positioning speakers in rooms is to experiment. Remember that a change in listener position is often as good a solution as moving speakers. Smaller rooms are more problematic as the major modes start higher in frequency and have wider gaps between them. Positioning speakers to fire across and room integration problems. Lifting the speaker on a stand or shelf reduces its ability to couple into the first vertical room mode.
Input Switching

WD88VA is configured as a single input power amplifier, though the inclusion of a volume control allows you to use it with a single line source such as a CD player. As an alternative you can add input switching to make it suitable for up to five line inputs. Off-tape monitoring is also optional as Peter Comeau explains.

Input switching is usually carried out by a multi-pole switch on the front panel. Unfortunately this means carrying all the input signals up to the front panel through a bunch of cables, expensive in cable if you are going to use the very best, and difficult to route neatly around the transformers and valve bases - and always with the possibility of picking up interference from them. A neater solution would be to couple a long spindle to a rear panel mounted switch leaving only one pair of cables to carry the switched stereo signal to the input valves. The drawbacks here are a floppy feel to the front panel switch knob, unless you can afford some excellent bearing sleeves for the spindle, and the difficulty of routing the spindle past the valve bases, components and transformers.

As we have chosen to use drop-through transformers to slim down the WD88VA it was impossible to route a spindle down the length of the amplifier without wrecking our proposed layout of the front panel. Accordingly we looked for a neater way of switching the inputs at the rear. Our proposed option is to use high quality miniature relays to switch the signals directly they enter the amplifier, taking the selected signal through our pair of high quality cables to the first stage valve. We can then operate the relays using a DC voltage relayed from the front panel switch via a single multi-core cable.

There were still several obstacles to overcome. If we used a standard PCB mounting method then the simplest phono socket to use would be the PCB mount type. However we wanted to keep the high performance individual chassis mount phono sockets that we have chosen for optimal sound quality as well as give kit builders the option to substitute their own favourite phono socket if they so wished. To do this we have to mount the PCB so that the board can be soldered onto the sockets after they have been fitted to the chassis. That means that the components need to be on the socket side of the board and we needed to find a relay that was compact enough to fit between the sockets.

We chose the NAIS TQ2 with gold over silver contacts that give an initial contact resistance of only 50mOhms.

Switching capacity is 1A at 30V. These relays are readily available with 5V coils consuming 140mW with a maximum switching voltage of 7.5V so we can drive them from the heater voltage. All we have to do is route the heater voltage to the front panel switch and it can then be linked to the requisite relay. For those who want a tape monitor facility they can add a front panel switch to act directly on the tape input socket and use the changeover contact to break-out of the source routing (a special PCB is included with the tape monitor option to facilitate this).

Otherwise the changeover contacts are used to shunt the unused inputs to ground, avoiding crosstalk between inputs.

The layout of the PCB is shown here and you can see the extensive ground plane running down the middle to avoid interference and crosstalk. The 6.3V heater voltage is linked to the board and the negative side sent to the front panel switch via SO with a small dropper resistor RRY I smoothing any initial voltage surge at switch on. S1 - S5 are the returns from the switch, each going to the requisite relay coil. Each phono socket is fed to the changeover contacts, normally connected to ground but, when its relay is energised, fed to the output bus bar. L6/R6 are the tape outputs fed from 1k buffer resistors. OPL/OPR are connected to the input stage of the amplifier via the passive volume control.

Talking of volume controls brings us on to the upgrade options. There has, in recent years, been considerable interest in using an L-pad switched volume control instead of the ubiquitous potentiometer. The common sense approach is that passing the signal through two high quality resistors and a switch is better than through the vagaries of a potentiometer track and wiper. In practice the subjective difference is small and perhaps not worth the considerable expense of the switched L-pad attenuator. However there is another way of achieving much the same object - the shunt attenuator.

Here the volume control is fed from a high value resistor and the potentiometer connected as a shunt to ground. The signal passes only through the resistor - the pot then just acts as a variable resistor to ground as part of the L-pad. It is tempting to think that any old pot...
can then be used, because the signal is not passing through it, but in fact the pot is in parallel with the input stage so any noise due to the pot will appear on top of the input signal. Use a quality pot, like the Alps, however and your main improvement is that the signal in this arrangement is affected only by the quality of your series resistor.

There's a downside, of course, there always is! This arrangement gives a 6dB loss of signal level. For most sources, given the high sensitivity of the WD88VA, this won't be an issue, but if you are thinking of using the output of older devices, such as a valve FM tuner, then the loss of signal will not do it any favours.

Otherwise the upgrade pack offers the usual component improvements in CSD04060A Schottky diodes for the power supply and Soniqs SAX PP capacitors bypassing the power supply capacitors and in place of the standard coupling capacitors. Cathode bypass capacitors will include Elna Cerafines.

Next month: Performance

Input switching is carried out by high performance relays on this PCB.
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22, 23, 24th Sept 06

confirmed Exhibitors as of 20/8/06
Show Time at the Park Inn!

Something very special is happening in September – the London Sound and Vision Park Inn hi-fi show. David Price explains...

Hi-Fi shows are very variable. In theory, it's a great idea - your chance to see (and hear) all the new gear for yourselves, come away with stacks of brochures and goodies, buy equipment and accessories at bargain prices and generally have a fine old time. However, not all shows are created equal, and it's all down to who's running the show, how many (and which) exhibitors attend, and how everyone feels 'on the night'. If it goes wrong, you end up with a show with all the atmosphere of an airport car park, fewer amenities and even less charm...

This year, something very special is happening to guarantee a cracking time will be had by all. Chesterfield Communications (the company behind the tremendously successful Northern Sound & Vision show in Manchester last January) in association with Hi-Fi World magazine, brings you the London Sound and Vision Park Inn Show at Heathrow. There are (at the time of writing) no less than 69 exhibitors, many of which are distributors and/or importers carrying a huge range of brands. We expect that there will be hundreds of manufacturers' products on demonstration, for you to see and hear - see the boxes below for the full list. In addition to this, all the Hi-Fi World team will be there, running regular 'Audio Clinics' on the Saturday and Sunday, where readers are welcome to hit us with their knottiest hi-fi problems, which we'll try to solve! Think of it as 'Hi-Fi World Live'...

The show is on Friday 22nd, Saturday 23rd and Sunday 24th September, from 10am to 5pm. Friday is trade-only day, and Sunday ends early at 4pm. Access is easy by car, train or aeroplane(!) and there's plenty of room to roam around to your heart's desire. There's even a bar too, should you have a strange desire to meet members of the hi-fi press.... For more information, click www.chestergroup.org

Remember to download your privileged ticket NOW!!!
DIRECTIONS - BY CAR
From London, along A4
Follow signposts to Terminals 1, 2, & 3. At traffic lights where you
would turn left for Airport, turn right and then take first left into
Park Inn Hotel entrance.

From M25
Follow signs for M4 Terminals 1, 2 & 3. Take exit 4 off the M4 for
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take the spur road to your left and turn left at the first set of lights.
You are now in front of the hotel.

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**Variety**
For a show to be really interesting we know you’ll want to see new faces and a really good mix across all product groups. That’s the hardest job for an organiser as he tries to balance financial requirements with visitor satisfaction. We think we’ve achieved that with this new show, we really have got the lot.

**Car-Parking**
Something we all hate - paying for parking at Heathrow. It’s expensive and often remote. Not this time! You can park all day at the venue for just £5!! The first 300 cars are guaranteed a space - so get there early and make it easy for yourself. That’s £5 for your car - so if you are coming with friends it’s cheap as chips as they say. See “directions” if you’re unsure of the route.

**Ticket Valid Both Days**
In keeping with our other shows your ticket is valid both days, so if you don’t see everything you want then you don’t have to pay twice.

**Factory Visits and Trips to Overseas Shows**
After the show we’ll be mailing you with details of some terrific trips you can get involved with throughout 2007-8. You will benefit from a special group package which will be all inclusive. If you have some special interests let us know and we’ll see what we can do.

**Loyalty Tickets**
Look out for the special ticket when you register on the day - it gives further discounts off the Privileged Ticket price for our other shows.

**Live Entertainments**
We are currently putting plans together for some exclusive performances by some top performers. Check www.chestergroup.org website early Sept for full details. This will be included in your ticket price. SHUTTLE BUS For those travelling by train or plane to the Airport make your way to the Airport Terminals 1-3 and get on the H2 hopper. For other services from other Stations check this website nearer the time. The H2 Hopper only takes a few minutes to reach the venue.
Hi-Fi World is pleased to sponsor this year's hi-fi show at Heathrow. We hope you enjoy it and hope to see you there.

One of the reasons the organisers have chosen the Park Inn Heathrow is because it was one of the very few venues in the area that was committed to expansion. The Park Inn Heathrow has proven by far and away the most popular venue for hi-fi shows not only for its superb location, but also its modern interior, excellent parking facilities and ability to host the show on one floor only - the ground floor. Soon, a massive extension to the Hotel will be completed well before our two shows in 2007. This will mean that future London Sound & Vision shows can enjoy uninterrupted expansion. The new extension really is a state of the art Exhibition/Conference Centre in its own right and will make the Park Inn Heathrow one of the largest exhibition venues in Heathrow. The complete centre will have over 2000 square metres of exhibition space, incorporated into which will be nine extra demonstrations together with new reception facilities, bars and restaurants.

The new centre will be very modern and contemporary in design with a chrome and glass decor to inspire and innovate.

The organisers already have interest from exhibitors for these extra suites for 2007 which augers well for the scope and future success of the show. We hope you enjoy this year’s show and return next year to an even more lavish venue.
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DEJA VU

During the winter of 1970 I had a week’s holiday in Oslo. On one very cold day I went into the City to find a record store and buy a copy of Crosby, Stills, Nash and Young’s ‘Déjà vu’ LP. I had only heard ‘Our House’ from this album and so asked the chap in the store if I could listen to a few tracks. He ushered me to a counter were they had several pairs of what I can only describe as ear pods on extendable cords mounted into the counter. I duly pulled these out and placed them to my ears as he cued up the record. As I listened, the strumming of Steven Stills’ guitar came into focus in the left ear and the group started to sing ‘Carry On’ and the whole song blossomed into glorious stereo...

This was a magical moment for two reasons: one it was a musical revelation as I had finally discovered a replacement which for me was close to the then recently disbanded Beatles, and secondly it was perhaps the first time I had heard anything remotely like hi-fi.

The sound I heard that day has lived with me ever since and become a benchmark by which I have measured equipment. I have long since searched out equipment that could approach the sound I heard that day. I am sure by today’s standard and in retrospect, the quality was not that good but the illusion has grown and still remains with me.

Over the years my search for a good sound has continued and I have moved from a Dansette record player, Sony separates, B&W DM110s and Yamaha CD player, Quad 34/306 Quad 67 CD player, Thorens TD160 and Shahinian Super Elf speakers to my present set-up of Naim Nait Si and CDX, purchased from that wonderful little hi-fi Shop Audience in Bath, Shahinian Super Elf speakers, Slim Devices Squeeze Box II and a rather fine Technics SL-1210mk II direct drive turntable which I bought for a bargain £150 from eBay.

I have become an advocate of DD turntables despite the fact they have been met with some derision from certain audiophile quarters. I have tweaked and modified a Thorens TD160 and had great fun with it, but the assured rock solid sound from the Technics has forced me to reconsider. My reasoning is the derision for DD was probably propelled by ignorance of the basic facts and the notion that a quartz -locked DD would always be hunting for the correct speed, compared with belt drive turntables. However this theory ignores two basic facts:

A motor with an elastic belt driving an inert platter constitutes an undamped mass-spring and will resonate. Belt drive motor control units are remarkably similar to the ‘hunting’ controllers of Direct Drives and suffer the same flaws. Possibly this will start a heated discussion in your pages but history has demonstrated that well built Direct Drive turntables such as Technics SP-10 Mk II, the Sony PS-X9, the Tri/Okenwood L-07D and the Denon DP-100 have much to offer.

None of these systems ever produced quite the sound I believe I heard that day back in 1970 until a work friend of mine loaned me his Stax SR3030 ear speaker setup. I got these little beauties back home and plugged them into the CD player, switching it to phone output mode. I grabbed my current remastered copy of Crosby, Stills, Nash and Young’s ‘Déjà vu’ CD, put on the phones and loaded the disk and then absolute magic! It was if I had been transported back to being that sixteen year old sitting in a record store in Oslo on a freezing Wednesday morning. The sound was phenomenal, clear crisp, tuneful and once again exciting and I listened uninterrupted to the whole CD. So amazed was I by the sound I got my latest favourite ‘Son of Dave’ O2 CD and was equally impressed.

Since I have purchased a set of...
Hi Garnet – spot bloody on, my friend. It was technically quite right for seventies hi-fi hacks to point out the problems of DD, which is the servo hunting. But what they forgot to mention was the problems of belt drive, which was the plant rubber belt acting as a clutch (or more specifically, a continuously variable transmission a la DAF Variomatic cars). Put a load on a DD and the servo sends more juice to the motor for it to get back to the right speed; do the same with belt drive and the belt flexes and the platter slows down. I suspect a lot of this was from certain ‘key players’ in the Brit belt drive camp, and it was disingenuous – they must surely have known that belt drive was also flawed!

The results you can hear for yourself today; DDs sound tighter and more speed stable, even against massively expensive high end belt drives. Noel’s right to say though that although the DD system was fundamentally superior, most came with rubbish tonearms and tragic acoustic isolation, and so managed to spoil the ship for a hap’orth of tar: Fun and games! So my advice is get an Origin Live Silver mounted arm and tuner, a spare Denon that I have TU-260L II should suffice for now until the FM/DAB debate is over. So we need seven inputs in total – unless the phono stages can somehow be switchable. I would probably anticipate using offboard phono stages into line inputs (but am open to any suggestions) and possibly only moving magnets for both arms, to permit cost-effective stylus replacements in my old age.

I therefore need some thoughts on replacements: specifically the record deck/arm/cartridges which will be well mounted, phonostage(s), CD, one box integrated amplifier and speakers. I hold no prejudices regarding make/origin, valves/solid state. Speakers need to be wall mounted and placed very close to rear walls for space and aesthetics. The new room is sprung boards by the way.

I listen to all manner of pop, contemporary, new country (no really hard rock though) and a clear, sweet sound with good quality bass is important, as well as adequate volume. The Linn rhythm trick is important and

Linn Ittok arm - not easily bettered.

tuner, Karik Mkiill Numerik Keilidhs and Kustone stands, Linn triwire cable & interconnects

I intend changing or selling almost the entire system (except the tape decks) due to a house move, retirement, consequent downsizing and a wish for a simpler approach overall, despite being very happy with the sound, it is time now to move on.

The sale of the above will assist in the purchase of new items and may give you an idea as to approximate budget, but I am pretty flexible – as music is very important to my partner and I.

I will however, need a record deck capable of taking two arms to accommodate a very large collection pristine LPs, as well as a growing number of collectables from car boots, sales, etc. that have seen considerable abuse and are currently played in another room on another cheapo Dual Dual.

An amp with inputs sufficient for the record deck without constantly pulling leads, plus for CD, tape (Nakamichi DR-10 cassette & Akai 630D reel to reel can share if need be but are essential as I have abundant software), MiniDisc, aux/video/DVD and tuner, a spare Denon that I have.

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Hi Mark — sorry to be a drag, but basically you’re going to struggle to comprehensively better some parts of your system, such as the Pekin tuner and LPI2, without spending lots of money. Still, here goes: I’d retain your Sondek, Ittok and Linto, fitting an Ortofon Kontrapunkt B instead of your Klyde cartridge; your and full remote control. Its punchy sound is infectious, and you’ll find it wonderfully musical — many will never need more. DP

**COMFORT ZONE**

Regarding the new Copland 405, will you be doing a test report on it sometime? Wondering if it would be advisable for my system as an upgrade, if I don’t do anything else? Or should I just keep on buying more software (used LPs) and just enjoy my ‘pipe and slipper’ system which consists of the following: Thorens 125S/Rega300/Dynavector 10x4 Mk2, Quad 44 preamplifier, 306 power/405-1I power amp, Quad 63s with Gradient subwoofers. Musical tastes — mostly classical with emphasis on choral music.

Joe Wdowiak

Canada

The upgrade you need is a pair of Quad II-forty five, Joe, with QC Twenty Four preamp. This uses KT88s in push-pull, just like the Copland, but it is designed by tube meister Andy Grove and has thermionic rectification courtesy of 5U4Gs. This amplifier is perfect for ESL-63s of course, as it is for most else. The Quad is as good as it gets for KT88 based tube amps. You will need an external phono stage though, as Quad haven’t finalised their internal valve stage. NK

**CDs IN OZ**

I thoroughly enjoyed your May article — I have the MA Radius 90s (and a Legend Kurlette sub'- Aussie brand) and will add the Brio soon. However, I am a CD listener, mainly Pop/Rock with a large, bright room. I will audition the Cambridge 640c v2.0 and probably the Rotel RCD-06 when it arrives here. Are there any other CD players that you recommend I audition — or am I banking up the wrong tree altogether with the MAs and Brio, considering your system was for vinyl? Any advice would be greatly appreciated.

James Sedgwick

Australia

You’re pretty close... A look at this month’s group test shows that the Rega Apollo/Brio 3 is a seminal combination — and it should (just about) drive the MAs, now the Brio has gained a few watts per side. The Apollo is a fantastic £500 silver disc spinner; it’s very musical and works famously with the new Brio. DP

**AWFULLY VERSATILE**

I can’t help noticing that my cheapo DVD player, when playing back live bands, gets everything (especially the top end) pretty much spot on. I also can’t help noticing that every CD player I’ve heard (admittedly mostly budget models, but all of them costing a darn sight more than my DVD player) is incapable of delivering an accurate top end — I’m thinking mainly anything to do with drumsticks hitting cymbals. Okay, CD players outside my budget might actually be getting it right in that area, but instead of ever more humongously expensive CD players trying to tease out what hides within a CD, why not have the music on a DVD in the first place, and have it played back on an inexpensive dedicated audio DVD player which, if my theory is correct, would have no problem in delivering excellent sound quality. Wouldn’t it be relatively...
easy to begin by releasing music albums on both CD and DVD until DVD takes over, and surely the best DVD players wouldn't need to be prohibitively expensive, allowing us mortals to enjoy sublime musical accuracy.

My present CD player, by the way, is the much-acclaimed Cambridge Azur 640c Mk2 - yes, I fell for the hype. Okay, it does create a bit more space between the instruments and doesn't clog up quite so much as my previous players when there’s a lot going on, but it’s still not delivering the goods in the top end. I used to play drums (after a fashion), so I’m going to give myself the benefit of the doubt that I know what cymbals should sound like when hit with a stick. Okay, I’ve run me flag up the pole - anybody going to salute?

Steve Marron

Good point Steve and one I understand and agree with. Yes, CD just goes “clank” when a drummer hits those things: it’s so bad it’s embarrassing. However, I am not so sure this is all down to CD so much as the recording on it. Some modern CDs don’t sound so bad here, at least when listening through a good player. I don’t spend so much time with DVD-A as it generally sounds as sterile as CD, but more so. SACD is another bag altogether and far more like it, as many readers and enthusiasts I know insist. But with Blu-Ray and HD-DVD on the horizon it’s all change on this front in any case. Pity that means we will likely see the end of Direct Stream Digital on SACD, as Blu-Ray does not support it.

NK

Agreed – even ultra-high end CD players such as the Naim CD555 I tested last month, don’t do treble or upper mid-band as well as a decent DVD player playing anything above 16bit, 44.1kHz CDs. Even 16/48 (as used on DAT and lots of DVD soundtracks) sounds far, far cleaner. This is because CD tails off at 22kHz (max) and the top one third of this is where its digital coding system, PCM, is most ragged (i.e. riddled with distortion) - this puts it right in the most sensitive area of human hearing. Even DAT’s 48kHz sampling frequency lifts the ragged area a bit higher up the range, where the ear is less sensitive. By 96kHz (most DVD-A), PCM’s nasties are comfortably out of the range of human hearing, but it’s even smoother and cleaner with DVD-Audio - a shame the world wouldn’t listen...

192kHz recordings. This is precisely why DVD-Audio was born (i.e. 24b/192), but unfortunately the music industry managed to accidentally stop anyone buying them... DP

DAC’S ENTERTAINMENT

I have been reading your correspondence with Dave Meyer and Fred Straw regarding TEAC transports. They were the Stello preamp/DAC - which I believe is temporarily withdrawn from sale - Chord DAC 64 - North Star Design Extremo DAC - TT Fulcrum DAC 64 (I realise you reviewed the CD player). All four of these are available with balanced XLR/EBU outputs and three are very flexible in respect of digital inputs.

As you may realise, it is impossible to listen to all four in the same set up at one dealer and almost as unlikely that they can replicate the amplifier / speaker set-up. I have managed to locate one dealer who stocks the Stello and the Chord. (Given the distance to this dealer this journey will require a long day trip).

However, good my memory I am unlikely to be able to juggle the memory of the soundscapes the respective DACs “paint”. This inevitably means reducing the number of choices so that my memory can cope. I only listen to classical and acoustic jazz music. Judging by your reviews, and taking flexibility into account, I believe I should concentrate on listening to the North Star Design Extremo DAC and the TT Fulcrum DAC 64 (which also has the advantage of a valve analogue output).

I would appreciate any advice you may wish to give.

Daniel

I am a fan of Chord’s DAC64 and Tube Technology’s DACs, both of which use Rob Watts’ WTA filter. Mr Watts was also responsible for have my TEAC checked over by NSS Ltd and I will then get the clock mod. which you recommended for the TI. Once this has been done I want to upgrade my DAC (to one with the above mentioned balanced XLR/EBU outputs). As this is likely to be my last CD replay chain purchase, my budget is in the range of £1,500-£2,000. You recommended the Net Audio Sonance DAC to Fred Straw and approved of the Musical Fidelity Tri-Vista 2i in the case of Dave Meyer. If my memory is correct, neither have balanced XLR/EBU outputs.

Over the last two years four of your DAC reviews interested me enough to encourage me to want to listen to the equipment with my TEAC transport. They were the Stello preamp/DAC - which I believe is temporarily withdrawn from sale - Chord DAC 64 - North Star Design Extremo DAC - TT Fulcrum DAC 64 (I realise you reviewed the CD player). All four of these are available with balanced XLR/EBU outputs and three are very flexible in respect of digital inputs.

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I would appreciate any advice you may wish to give.

Daniel

I am a fan of Chord’s DAC64 and Tube Technology’s DACs, both of which use Rob Watts’ WTA filter. Mr Watts was also responsible for
your Bigger Bit, another DAC we always respected. As I remember it, the Bigger Bit has a brighter sound than either the latter. I found TT's CD player a bit fruity and the Chord DAC somewhat more balanced in presentation. I do not know the North Star.

Yes, I'd say it's a toss-up between the Stello and the Chord. I've had extensive experience of both and love them. The Chord has an extremely beguiling, analogue-like sound that's just a tad rolled off up top, while the Stello's far more open and extended, but sounds just a tad less natural and bit more 'hi-fi'. Either is a brilliant choice, and it's your call as you know which presentation you prefer better than we! So make that long trip to your dealer, it's worth it.

THE CURE?
I feel I've taken huge strides towards the sound I want, and with the right source material my system now sounds (to my uneducated ears anyway) quite fantastic, but there are still a few areas I want to address. Room size is a big limiting factor - just 13' x 10', with the speakers on the long wall, but at least I do have a dedicated listening room and don't have to share with a TV. Musical tastes are varied but blues and prog rock are most often played.

My system was a Linn Sondek LP12/Akito/K9/Lingo, Audiolab 8000A, Linn Index IIIs with Kustone Stands and Linn Mimik. Bought in 1992 this has given good service but gradually I had become very dissatisfied with it due to what I perceived to be a poorly integrated, harsh and sibilant sound with little bass. Whether this creeping dissatisfaction was due to my hearing changing as I got older, my room having changed, more time spent with the system as the family grew up or what, I don't know, but I had stopped listening to CD altogether and even vinyl left a lot to be desired, so when cash became available I started to upgrade...

On the vinyl side I upgraded the cartridge to a Dynavector 10X5. I know this is one you've often recommended and my local Linn dealer also suggested it. Anyhow, I have never spent £300 better. It was a huge improvement. I was struck not only by the tonal improvement but also the tremendous decrease in surface noise, the vastly improved imaging and the space around instruments.

However, I'm greedy for more and I want to upgrade further. My LP12 sits on a rather massive wooden structure which also houses the electronics. I know this is not recommended, but room size dictates that a separate turntable stand is not practical. I was therefore thinking about adding a Trampolinn baseboard, but the Linn dealer was not keen, instead trying to persuade me to buy the Circus upgrade. What are your thoughts here? Are either or both of these upgrades worthwhile; would my money be better spent on upgrading the tonearm or even another cartridge upgrade, or is it time I moved on from the Linn? I do like the warm sound it produces but I realise that sound is coloured and I have often seen the Sondek described as "off the pace" in recent years.

I changed the Audiolab amp for a Shanling STP-80 and, as I now needed a phono stage, I also bought a Trichord Dino. For a short time while I waited for delivery of the Shanling I had the Dino connected to an auxiliary input on the Audiolab. I was disappointed to find that although the Audiolab's phono stage was noisier, to my ears tonally it was preferable to the Dino. I've found auditioning phono stages difficult, as all the dealers near me stock only one model other than the ubiquitous Project Phono Box, so making direct comparisons is impossible. Should I stick with the Trichord and upgrade the PSU or trade it in for something else? What would you recommend with a budget of around £500?

My CD player has been replaced with an Eastern Electric Minimax. I listened to a number of CD players and had begun to despair of finding one I really liked. I was impressed by the imaging and spatial characteristics of the Musical Fidelity 3.5 (though strangely not the 5). I listened to the Meridian G08 expecting to like it, but the sound just grated. Naim I found very "ho hum" ordinary, and the same
with Arcam. I was close to buying a Shanling CDT-100 which was the best I'd heard so far when I read your review of the MiniMax and decided to take up Shadow Audio's 30 day money back offer. What a revelation! I can only describe it as being as close to the sound of vinyl as Red Book CD is ever likely to get. With well-recorded CDs the sound, to my ears, exceeds anything I've ever thought possible from CD.

Unfortunately, my one tube-rolling experiment so far has failed to improve on the stock valves. I acted on DP's recommendation to try NOS Mullard tubes but was not impressed, finding the sound rather "veiled" - if throwing a wet blanket over the speakers can be described as "veiled" that is! I'm using Van Den Hul "The Name" interconnects and although I don't feel any real need to improve on these (and I'm fairly sceptical about cables in general) I wonder if you think them adequate?

My speakers have, as a stopgap solution, been changed for Linn Keilidhs. I liked these when I bought the Indexes, but couldn't afford them at the time. Anyway, I saw a pair in nice condition with Kustone plinths for a bargain price and as my funds had been temporarily exhausted on the electronics I decided to take the plunge. They work surprisingly well with the Shanling amp and are a big improvement on the Indexes. Bass is much tighter and there is more of it. Integration across the frequency ranges is better and the sound overall much smoother, presumably because of better cabinet construction. Initially I was using QED 79-strand copper cable. I bought some Linn K400 biwire but was not impressed so I went back to the QED.

What would you recommend to improve this area? I do intend at some time soon to upgrade the speakers further and wonder what you would suggest with a planned budget of between £1,000 and £1,500. The speakers must be usable close to a rear wall. Perhaps I should just keep the Keilidhs and upgrade the tweeters to those from the Ninka Katan which I have heard is worthwhile - do you have any experience of this modification?

The area I still consider a problem is vocal sibilance, both on CD and vinyl. The system does not introduce it but simply reproduces it when it is present in the recording, though it does nothing to smooth or mask it. Is this the price I have to pay for transparency and detail or can I do something about it? When I demo'd the amplifier I heard it with Monitor Audio Silver RS8 speakers and this combination seemed to keep sibilance under control rather well. Some people have suggested I improve my cables, others that I introduce a mains conditioner.

What are your thoughts on mains filters? I don't think I have a particular issue there as I don't hear any clicks or pops and I have heard that they can limit transient performance, which I don't want to do as that is one area where the Shanling amp excels. Should I just accept this for now and hope to address it when I change loudspeakers? Is the problem perhaps just down to my being too close to the speakers because of the small room? I have experimented with toe-in and tried introducing some more soft material in the form of a wall hanging and curtain over the door and whilst this has helped a little it is not a cure. I hope you can help cure my problems.

Phil Cowley

Oh my gawd... this is another 'how long is a piece of string' one! First, you were right to have junked the K9, as its name suggests, it's a dog, and any half decent modern cartridge kills it. When will people stop thinking everything Linn ever made was the best? The truth is that some things that Linn made were the best, but not all. The Linn LP12 is a case in point; I've still never heard a more musical machine, but it's way behind in so many other respects - imaging, soundstaging, bass evenness and clarity, treble extension, etc. You've got to decide if you want a system voiced towards that overt LP12 musicality, or you want insight and clarity - you can't have both with your Sondek I'm afraid. If you want the former, get an Origin Live Silver fitted (£600) and you'll love it; if not the get a Michell Orbe SE (£2,200) and you'll love it. If you go for the latter, a Cirkus is far more worthwhile than a Trampollin base; if you want to isolate your LP12 then an Audiophile Furniture Base SP01 is brilliant at under £1,000 (and it works wonders on the Michell too). The Dino is excellent at the price, but these days is troubled by Graham Slee's ERA V, whose main problem is that it's MM only. Fortunately, your Dynavector is high output, so should give great results with an ERA V; pound for pound the latter is more musically beguiling and richer too - it's only when you're using MCs that this loses out on value, as you have to buy yourself an Elevator. The Mullard tubes are superior by a mile, but in your system that additional richness obviously doesn't work, and a thinner, lighter sound is preferable; fair enough - but if you ever get into the realms of truly high resolution systems, I suspect you'll go back to the Mullards, so don't bin them! I'd recommend Black Rhodium Tango loudspeaker cables; they're the most musical £1.5 per metre on the market and will flatter the Linn speakers' rather dry tonality. Leave mains conditioners for another day; next on your list should be a serious amplifier (I don't regard the Shanling to be such); these start at £1,000 in the shape of Sugden's A21a, but you'll have to buy more efficient speakers like Revolver RW45is (£1,200) to get...
I cannot comment on all your problems Phil, as I don’t have the necessary answers. Phono stage quality becomes a crucial issue once you move above everyday items and sound quality varies widely - and often distressingly, as you have found. If you like the presentation of the Shanling, try a valve phono stage. Or try the Aqvox 2CI which is very flexible and both easy going and spacious in its sound. I liked it.

On the matter of sibilance I am surprised you found there was no sibilance with the Monitor Audio RS6s, as this I found recently is one brightly balanced loudspeaker. It suggests your Keilidhs are the cause of the problem, due to their forward sounding tweeters. If you liked the RS6s, then try auditioning the new GS60s if you can. They are far more civil but also more revealing. Whilst big floorstanders are not ideal for a small room, the GS60s have well damped bass. At less cost are KEF’s iQ5s. They are suitable for near wall use, for small rooms and for valve amps.

I’m interested to hear about your experiences, but you don’t say how the change from Audiolab to Shanling amplifier - a large step - went. NK

THE CHINESE WAY
Since sending you the email about finding 6n6t valves for a MeiXing 67Ha preamp I thought it might be of some help to your readers that I was able to find these valves for sale in China.

It’s very simple, add the translate keys [Chinese] and you can order as many as you like from most of the audio shops in China. Paying can be a problem as they don’t like Paypal on ebay and you can’t use the Post Office as they accept overseas transactions.

ON THE RADIO
I bought the August 2006 issue and read it with great interest. I do a lot of radio listening and I wanted to know more about what is going on. This issue really helped me.

Some comments however: all Magnum Dynalab FM tuners can be bought with solid-state outputs at a lower price. This should have been mentioned and I would have liked to see a comparison. I do not automatically assume that tubes are better, as some do. I would also like to suggest a look at Germany, where a lot of regions seem to have good DAB reception (free Audio, Stereo, Stereoplay). I have not been in the UK lately, so I assume that your criticism of the BBC and other radio stations is correct.

On the same matter: what happens in the USA, Korea, Australia with digital radio? How about satellite radio with a dish, its quality and the number of stations?

As for me, I have ordered the Denon TU-1500 (black version). In my apartment I have a contact in the wall that is controlled by a cable company. I cannot even control which cable company, because this is regulated collectively for a whole block of apartments. I am on the ground floor, so my own antenna would not take in much.

Some general comments: I prefer equipment that switches on in five seconds and gives me music. Waiting one minute for start-up of an operating system and having to worry about updates and virus protection is unacceptable for me. Also, computers use a lot of energy, much more than a solid state tuner, something important in these days of increasing energy prices. So I agree with your editorial board that the computer can not completely replace hi-fi separates.

I like your philosophy of respect for the oldies. Some old classics are really unbeatable and can hold out very long with minimal maintenance. Some other UK magazines seem to think that only the latest can do the Kleenex philosophy.

Paul Geladi
Sweden

It’s funny you should mention DAB in Germany, because, as I write this, only yesterday the body representing the German commercial radio industry released a statement that said: “The “classic” DAB system should be either modernised or switched off”. Instead they want to use the modern DVB-H and T-DMB systems for digital radio. There’s also been similar disquiet about using the current DAB system in France, Sweden, The Netherlands, Canada, Australia and Finland. The problem is that the DAB system uses the prehistoric MP2 audio codec, and everybody now wants to use the AAC+ codec instead, because it is far more efficient.

In fact, of the other countries you mention, Australia has already committed to using AAC+ on DAB, and it was South Korea that developed the T-DMB system T-DMB is actually just a modernised version of DAB that was designed for mobile TV transmission, but it also uses the AAC+ codec, so it can be used for
digital radio as well.

The U.S. has gone in a totally different direction to the rest of the world, however, and it has two subscription-based satellite digital radio systems, XM and Sirius, which already have 11.5 million subscribers between them. They’re also using a different terrestrial digital radio system to everybody else, called HD Radio, which stands for High Definition Radio, but if some of the plans I’ve seen for it are true it will be more like UK DAB-definition than hi-def.

By the way, you can already buy devices that allow you to receive Internet radio without having your PC on, for example the Slim Squeezebox. And although the Internet isn’t the simplest way to receive radio, I think it will become the highest quality source of radio over the next few years, so, personally, I’m willing to put up with its slight drawbacks.

On the energy issue, I’d be far more inclined to do my bit for the environment if the UK government could be bothered to get strict with the consumer electronics giants over the issue of standby power, which wastes scandalous amounts of electricity. SG

On that last point, I recommend using valves; you have to switch them off when you’ve finished listening or [a] your listening room reaches 4,000 degrees centigrade or [b] it catches fire. DP

THE RIGHT STUFF
I feel it worthwhile to comment on your interesting article on the run p57 in Sept issue of Hi-Fi World. The lines that I particularly refer to are “Now some seventeen years later, I find myself with a system that’s probably the closest to how I remember that eighties set-up, but which is in absolute terms massively better. I love it and I’m always seduced by it, but I still don’t get as thrilled by it as my old Linn/ Naim combo.”

There came a point six months ago when I realised that I wasn’t experiencing quite the same richness and spinning quality in tracks that I remembered some twenty years or so ago. Now I know for a fact that my system is an awful lot better than the one on which I was so captivated by when younger. Some people might say that mains pollution/ radio wave increase or any number of things is affecting the ability of my hi-fi to perform as it used to, but the explanation is a bit closer to home: I believe it’s absolutely nothing to do with the hi-fi but that I have changed. Age affects us. Our physical abilities and senses decline ever so gradually over the years. The most sensitive of all senses is probably the ear and the pleasure centres in the brain that perceive it.

In spite of the above, I have been recently surprised at seemingly unrelated ways of improving matters significantly. A while ago I was starting to suffer from regular headaches and lack of sleep. By simply cutting out most tea/ coffee and drinking loads of water the headaches and insomnia disappeared. However, I also noticed that my enjoyment of music was dramatically improved. Listening pleasure is not just about the quality of the airwaves but the quality of neuron activity in the body.

Some years ago there was an article in one of the magazines that had done some research into listening ability as it related to blind listening tests. The conclusion was that coffee adversely affected listening ability whereas one glass of wine (but no more) improved matters. I would lastly mention that I have a suspicion that mobile phones mess with the ears neuron activity and personally because of the critical influence that hearing has in designing products, I hardly ever use them.

There’s probably any number of...
Hi Mark (eagle-eared readers will know this man knows a thing or three about making stunning tonearms). Actually I disagree; despite hitting the big 'four-O' recently, I am still at the peak of physical fitness (cough) and actually predict that I'll be even fitter when I'm even older than I am now, which is of course not very old (!). But seriously (if you pardon the Phil Collins album allusion), I think that the doe-eyed wonder at the world one has in one's twenties can be restored by several glasses (or indeed bottles) of wine, as opposed to your suggested one solitary, pathetic unit. Of course, if you're designing Origin Live tonearms you'd probably best stay sober, but as for me, I find I can revert to my "Young Ones" student mentality quite easily with the simple addition of 'grog'. I know this to be a scientifically proven fact — and no mere subjective observation — as I've seen many hi-fi PR people display similar 'naivety' after copious amounts of Bolly... DP

HEAR WE GO...

My deck is an Ariston RD80 fitted with Linn Basik arm and a cheap Goldring cartridge, Quad 33 and 303 amp and preamp, Wharfedale Diamond speakers. It all sounds quite nice, but I want to improve the system. Where is the place to start? I realise the deck has its limitations but I reckon its worth the place to start? I realise the deck has its limitations but I reckon its worth

the place to start? I realise the deck has its limitations but I reckon its worth the place to start. Any advice would be very welcome.

I breathed a small sigh of relief when I read your excellent feature article on digital audio in the June issue of HFW. Sure, its a shame that industry... DP

On to an issue of a more philosophical nature. Ken Ishiwata's "Digital Dream" was interesting, although it raised some conceptual questions for me. Ishiwata imagines a coding system that allocates, quote "the required numbers of bits in accordance with the music's dynamics! For silence we don't need any bit allocation, do we?" I get the gist of this - that we don't need to store information when there is no information to store - but I was curious as to how we define musical dynamics and its codification into information. What is silence? And at what point will the dynamics of a given sound enable a higher or lower quantity of information to be stored? Whilst it is true that theoretical 'pure silence' contains no sound information, in reality silence within passages of music are rarely absent of sound. Anyone who has attended a concert will know that musical breaks within a piece also contain low level information, such as the breathing of the players, the echoed resonances of musical instruments, the buzz of amplifiers and inevitably, the creaks and groans from the audience. Certainly, some of my friends who are into experimental music (field recordings and the like) will say that passages of sound that are not dynamically speaking "loud" may be still rich in musical information, albeit at low levels or beyond the range of human hearing. We know that acknowledging the importance of this for music has been an important factor in the expanded frequency response of recent loudspeakers and components. Anyway, I don't mean to question Ishiwata, since he knows a good deal more on this topic than I could ever know. But I was left wondering (and I guess the same question may be asked of compression schemes), how do we reasonably determine what information to include, and what to leave out? This is an important question, particularly if future technological advancement in recording techniques could enable us to capture more, and hence improve our ability to hear recorded music in its fullest sense.

D. Wadiwel
Australia

In a nutshell, we don't know what the ear requires for the brain to register a sound as natural. Consequently its a subject that raises debate through to argument, plus considerable research and experiment in the medical field and in telecoms, if not in the hi-fi business (believe it or not). Some of your fears are unfounded but others are real.

Allocating bits according to information is called a Variable Bit Rate system and is already in use. Audio, the earliest type of data to get digitised, remains locked into a relatively simple scheme known as Pulse Code Modulation, that uses a fixed bite rate. Data reduction ("compression") schemes throw away so called unnecessary data within PCM code, but VBR also leads to efficiencies. However, as data transmission systems, from disc to cable to wireless, gain capacity at a great rate, I am not sure concentrating a lot of effort on data reduction or variable bit rates is a pressing concern. At present, in the UK at least, broadcasters are besotted with the idea of variety, at the expense of all else - especially quality, be it sound quality or programme quality. This is likely to change in the next ten years or so as we all cable / wireless up and it becomes clear as to how many channels of info, or how much (multiplexed) info we really do need. The UK, having been highly regulated, is really in a state of change here and as such, is behind the rest of the world - especially the USA.

All linear digital systems code into silence; PCM actually mutes at zero, so no problem here with low level signals, providing sufficient resolution is available which, with 24 bit it is. Data compression schemes such as mp3, AAC and what have you are problematic here as they throw away info below a certain level on the basis that we cannot hear it, but at what level we cannot hear something will always be open to question and therefore approximate. William A Yost, of the Parmly
Hearing Institute (Loyola University, Chicago) notes that at 0dB, the lower threshold of hearing, the ear’s tympanic membrane is “vibrating a total distance approximately equal to the diameter of a hydrogen atom.” So in cosmic terms even, the ear is a pretty sensitive device, and as you say we are well advised not to remove low level information if this accuracy is to be respected. All is not lost though, for SACD and DVD-A reach down to incredibly low levels, as they theoretically possess 144dB of dynamic range below their 2V of output. Both Blu-Ray and HD-DVD offer the same dynamic range, but six channels of it. These transmission systems don’t, in highest quality Peter Walker, I know from speaking to him. If you don’t want to upgrade the 33/303s, sell them as the world is happy to re-cycle these products. A Cambridge Audio Azur 640A amplifier has an optional phono stage and is worth considering.

You do not say which Wharfedale Diamonds you own, but it’s likely early models that could well be replaced with modern Wharfdales or Kef IQ Series floorstanders, or such like. Brit ‘speakers are expensive in Australia I believe, but they are well designed and built true hi-fi products, rather than China cheapest, even though they’re built in China!

An obvious cartridge upgrade is to a Goldring G1042. This will work well with the Cambridge and get you up and running in today’s world! NK

ON THE BUSES...

During the same month you reviewed the Goldring Lenco GL99 classic deck, I came by a GL 75 in a shop for the princely sum of £45. After getting a back injury carrying it home on the bus (I kid you not!), I put it down and gave it an inspection. My brother gave me some good tips, i.e. make sure the idler wheel didn’t have a flat spot etc. The result was that the lid had been damaged at some point and the front right edge hung slightly low, not as a result of the bus ride, I had already noted this when I bought it. The deck itself was unmarked. No dirt marks on the brushed Aluminium, mat in pristine condition, the arm had fingerprints on, but no scratches and would have polished up well. The cartridge head and pins were fine too. The lift arm worked smoothly. It came with a Shure M75MB cartridge and the needle still seemed fine. So, to operating the deck. I had dilled the manual from the web and found that the heavy bob weight was on it, the light one and setup equipment were not supplied. I followed the manual instructions (very poor, I must say) and found my main problem.

I am assuming you are aware of the construction of the armboard/lift arm mechanism for this model. I found it impossible to get the lift arm low enough for the needle to track! Due to the arm resting in a channel, I could not just simply raise, or lower, the arm pillar. My brother found all the screws and no amount of adjustment could alleviate this problem. So we just took off the arm lift and - presto! - a working record deck. We did a quick set-up and played some vinyl. How great the sound was.

The cartridge must have quite a high output, the NAD needing much less volume than either the P3 or Thorens decks my brother had lent me up to that time. So, I am now using the deck with no arm lift and it sounds good. I have acquired D. Gilmour’s “On An Island” on vinyl on Saturday last - scrumptious! Though I have to say, the clear vinyl single ‘Smile’ was dreadfully pressed and the shop let me order a replacement before I even left the shop. I would like your thoughts on the conundrum with the deck please. I am pretty sure from web pics that the mat is original. My brother has offered to give me a second, thick mat so put on top to give enough height to replace the lift arm useably. Even in this rough and ready state (cartridge set at 1.5g) it plays a sound I really like. I felt it gave more bass and clearer, if not higher treble than the other decks, now I have listened to it some. Although not the top end item you reviewed, I am sure that when fettled, it will prove a surprisingly good player and will probably outlast me, the construction is so solid.

Paul Clewlow

I dimly remember the GL75 from many moons ago and it was good, but prone to rumble. I presume yours does not. Cartridges were mounted on spacers to cure the problem of insufficient height. Shure’s M75MB was also a good ‘un in its day, with big bass and plenty of output I recall. The stylus wasn’t so advanced however and I am sure a modern Fritz Geiger profile in a Goldring 1042 will be obviously superior. Have fun. NK

Agreed – plus the Sound Dead Steel Isolomat, which is a brilliant upgrade to almost any turntable; it takes out the zing from poor platters and cuts noise from motors right down... DP

SDS Isolomat – a brilliant turntable tweak.
HIGH DEFINITION IN PICTURE AND SOUND

Sound had reached a pretty good standard some time ago, and it’s easy to pretend that picture quality is less important, and indeed for some time I have been advocating the greater importance of sound, as if that’s not right you won’t enjoy what you are watching, whereas the opposite isn’t always true. But that was before High Definition, and although DVD has to get it’s act together, we do now have HD from Sky, and pretty spectacular it can be. Some of the programmes on HD channels aren’t HD, but the BBC demo channel, with Bleak House/ Hannibal/ Galapagos / Jools Holland etc., looks really good, especially when blown up onto an 8ft. screen. It will be great having opera, ballet and musical programmes looking so good that the enjoyment of the picture can equal that of the music!. So with projectors getting so cheap now that you can set up a projector/screen setup for around £2.5K, which is what a 42in. plasma will cost, there really is no excuse for looking at this option. The picture is more natural, and size really does matter! So do give us a ring and let us show you what can be achieved today.
North Star
192 top loading Transport (Pro 2 CD Mech) and Extremo DAC.

HiFi World May 2006 Verdict - 5 Globes
"Superbly finessed and loquacious sound allied to excellent build and finish make for a brilliant value high end buy".
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192 Transport with the Philips Pro2 CD Mech £1249 Extremo DAC £1669. Available in Black or Silver.

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IC 300, IC 200 IC 100 Analog and DI-20 & 30 Digital, VI6 Video Interconnects, AC-2 MKII Power cord, SS800 and SS1000 MKII Speaker cables. Silverfused wire technology.

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The world's only true Ferrite technology cables - a high quality ferrite is extruded over the conductor strands. Power Cords - GNLM 5/2.5 (CSA 2.5) and GNLM 05/04. From £48 for a 1m cord terminated with an IEC and MK tough plug. Other terminations include Fig of 8, 16 amp IEC, and mains plugs Schuko, USA, Danish, India, Swiss etc.

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Best Loudspeaker - Wallpaper Magazine 2004. Reviewed in the UK by HiFi News, Hifi Plus and HifiChoice. Many other great overseas reviews. Ask for brochure and price list. VC1 from £3450, VC2 from £4750 and VC7 from £6400.

LAT International Maintenance products - Contact Cleaner, Record Cleaning solution, CD/DVD disk cleaning solution Enhancement products - Vibra Killers, C Diamond, Once & Done and Green Line

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- **RiTaik Talisman MK II speakers**
- **Hales Trancendence 5 speakers**
- **Living Voice OBX-R2 speakers**
- **Dynaudio Audience 7 speakers with stands**
- **Elac CL330 Jet speakers with stands**
- **Origin Live OL-2 speakers**
- **Mordaunt Short MS815 speakers**
- **KEF Concorde speakers**

**PRE-AMPS**
- **Quad 44 pm amp**
- **Quad 303 Power Amp**
- **Mark Levinson ML432 Power Amp**
- **Audio Anagogue Puccini Integrated Amp**
- **Ayre AX-7 Integrated Amp**
- **Kora Triode 100 SB Monoblocs**

**AMPLIFIERS**
- **Classe A CA201 Power Amp**
- **Arcam Alpha 8R Integrated Amp**
- **Arcam Alpha 8P Power Amp**
- **Cyrus 2 Integrated amplifier**
- **Mark Levinson 431 amp X-Demo**
- **Audio Research 9130 Power amp**
- **Perreux 200ip int amp**
- **Audionote Neiro mono-blocks**
- **Parasound HCA1000A amp**
- **Audionote Kegon mono's (new £28000)**

**CD PLAYERS & TRANSPORTS**
- **Krell Studio DAC Balanced**
- **Electrocompaniet ENC Reference 1 CD Player**
- **Micromega Drive 3-DAC1**
- **Devon DOD 590 CD Player**
- **Sonic Frontiers Transport 3 (5K new)**
- **Denon DOD 590 CD Player**
- **Sony CDPM41 CD Player**
- **Pioneer PD-5502 CD Player**
- **Counterpoint DA-10E DAC**
- **Roksan Attessa with ROC DA1 dac & PSU**
- **Yamaha CT7000 Tuner**
- **HNE 3 Tier Granite Stand**
- **Transparent Music Wave+ 10-ft pair**
- **AVI Tuner**
- **Accuphase P1200 Mains regenerator**
- **Hitachi FT5500 MK II Tuner**
- **Technics ST-GT550 Tuner**
- **Winds ALM-01 Stylus Gage (New)**
- **Sony ST-SE570 Tuner**
- **15 Foot Transparent Music Wave Super single mono run.**
- **Zerodust Stylus cleaner (new)**
- **Fourpoint DA-10E DAC**

**TURNTABLES, CARTRIDGES & TONEARMS**
- **SME Series 5 Tonearm**
- **Koetsu Urushi**
- **Koetsu Red Cartridge**
- **Michell Gyrodec (Bronze)**
- **Trichord Dino Phonostage**
- **Trichord Delphini Phonostage with PSU**
- **Linn LP12/Basic + Arm/K9 cartridge**
- **Kinshaw Perception phonostage with power supply**
- **My Sonic Eminent (Ex review)**
- **Audio Tekni Cartridge with step up**
- **Blue Pearl (the prototype) Turntable with Graham Phantom arm**
- **My Sonic Eminent cartridge (new)**
- **Project 9c S carbon fibre silver wired arm**

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## Ex-demon and second hand items

### Digital

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<tr>
<th>Item</th>
<th>Was</th>
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<tr>
<td>Audio Synthesis DAX Decade 22 Bit Single ended S/H</td>
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<td>Denon DA-4000 System x-demo</td>
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<td>Krell SACD Standard x-demo</td>
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<td>Krell KPS200L CD/Processor S/H</td>
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<tr>
<td>Meridian 208 CD Player S/H</td>
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<td>Meridian 200/203 Transport/DAC S/H</td>
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<td>Musical Fidelity Nu Vastal CR 3D Player S/H</td>
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<tr>
<td>Orpheus Labs One DAC w/ analog x-demo</td>
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<tr>
<td>Orpheus labs Zero CD player x demo</td>
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<tr>
<td>Primus TV101C/DVD Player x-demo</td>
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<td>Resolution Audio Opus21 Silver H</td>
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<td>Sulpur masterclass CD x-demo</td>
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<tr>
<td>So-&amp; CDX90 SACD Player</td>
<td>549</td>
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<td>The@ Generation V Balanced S/H</td>
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<td>Theta Pro Basic II DAC with Coaxial/Balanced</td>
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<td>Wadza 302 Black x-demo</td>
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### Analogue

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<td>Audio Note 2x5ft bi wires AN Spa Speaker cable S/H</td>
<td>655</td>
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<td>Clearaudio Emotion FF Package x-demo</td>
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<td>Conrad Johnson EVI Phono slaggio x demo</td>
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<tr>
<td>Dynavector V10X5 MC S/H</td>
<td>299</td>
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<tr>
<td>Graham Silver Elevator EXP MC step up S/H</td>
<td>510</td>
<td>320</td>
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<td>Kuzma Stabi/Stogi S Turntable New &amp; Boxed</td>
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<tr>
<td>Rega P25 Maple S/H</td>
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<tr>
<td>Rega P2/Bias Turntable S/H</td>
<td>270</td>
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<tr>
<td>Roland Axois Alphason XPSII S/H</td>
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<td>VPI Aeries Scout Turntable S/H</td>
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### Preamplifiers

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<tr>
<td>Audio Analogue Bellini Remote Preamplifier x-demo</td>
<td>625</td>
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<td>Audio research LS1 Hybrid Preamplifier</td>
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<tr>
<td>Conrad Johnson PV10L valve Preamplifier x-demo</td>
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<td>Conrad Johnson PV14L remote controlled valve x-demo</td>
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<td>Conrad Johnson Premier 18LS x-demo</td>
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<td>Convergent Audio CAT SL Signature Black S/H</td>
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<td>Denon D5000 Preamplifier S/H</td>
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<td>Holland HP-100 power supply</td>
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<td>Krell KRC HR preamp S/H</td>
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<tr>
<td>Orpheus Two Preamplifier x-demo</td>
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<td>Sugden masterclass Preamplifier x-demo</td>
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<tr>
<td>Spectral DMC 306 Reference Preamplifier</td>
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### Amplifiers

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<td>Audio Analogue Donizetti Mono Power Amplifiers x-demo</td>
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<td>Audio Research CLD5 Ro Built S/H</td>
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<td>Audio Research VM520 Valve mono Amplifiers x-demo</td>
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<td>Audio Research VT1000 Milli Valve Power Amplifier S/H</td>
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<td>Bel canto EVQ2 Gentl x-demo</td>
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<td>Conrad Johnson N1808 Valve Amplifier S/H</td>
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<td>Conrad Johnson Premier 350SA x-demo</td>
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<td>Electrocompaniet AV120 Dmb Stereo Power Amplifier S/H</td>
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<td>Krell FPB 700xGlass A Power Amplifier x-demo</td>
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<td>Mark Levinson No333 Power Amplifier S/H</td>
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<td>Pathos Models One Version II x-demo</td>
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<td>Spectral DMC 1000 Amplifier x-demo</td>
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<td>Sugden masterclass monos x-demo</td>
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### Loudspeakers

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<td>ATC SCM12 Cherry S/H</td>
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<td>Audio Physic Yara Monitor Cherry x-demo</td>
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<td>Audio Physic Spark 2 maple x-demo</td>
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<td>JM Lab Micro Ultopia Classic x-demo</td>
<td>4700</td>
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<td>JM Lab Chorus 714s Style x-demo</td>
<td>479</td>
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### Cables and Accessories

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<td>Alcataca 50cm Sand filled stands S/H</td>
<td>179</td>
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<td>Audio Note N259i wireed AN Speaker cable S/H</td>
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<td>Audio Note 1m ANX AES/EBU balanced Digital S/H</td>
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<td>Cogen Hall Intermezzo EM 0.75m RCA S/H</td>
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<td>Cardas Cross 1.5m RCA-RCA S/H</td>
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<td>Kratigal MDC1 1m AES/EBU 110cm Digital Cable S/H</td>
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<td>NBI Pro Balanced 0.1m interconnect S/H</td>
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<td>Nordost Shiva 2 mains cable x-demo</td>
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<td>Siltech FT1 to G3 2x5 ft Silver Speaker cable x-demo</td>
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<td>Sound Organisation Record Rack with CD insert S/H</td>
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<td>Spectral M330 2m RCA BNIB</td>
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<td>Spectral Z Chord 1.5m mains cable x-demo</td>
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<td>VDH CS-122 HYBRID 2x4.5m line speaker cable ex-demo</td>
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<tr>
<td>Western Electric 300B Valves 1Pair NEW</td>
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### Tuners & Tape decks, power supplies

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<td>Adagio with Dynavital FTR remote/Tuner for Etude S/H</td>
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<td>Marantz DVD400 DVD Player S/H</td>
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<td>PS Audio Powerplant 300 with multi wire x-demo</td>
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<td>Rega radio 3 Silver X-demo</td>
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<tr>
<td>Sugden R21 AM/FM Tuner x-demo</td>
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### Suppliers and installers of High Quality Audio Systems

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<td>Lavardin</td>
<td>Wilson Audio</td>
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</table>

Midland Audio X-change are looking for Audio Research, Krell, Mark Levinson, Naim Audio, SME, Wadia.
dial a dealer

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Speakers: Audio Physic, NEAT, Verity Audio. Tuners: Magnum Dynalab. (Credit Cards Accepted).

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Hi-Fi World measures all incoming products before sending
them out to reviewers and is unique in having such a
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to assessing audio equipment. Nothing gets by before
thorough scrutiny.

In-house testing is costly and time consum-
ing, yet it has always been central to our belief that both
readers and manufacturers deserve it, because there is
no alternative if complex technologies are to properly
assessed.

Measurement achieves many things. It ensures a product
is working properly before it is subjectively auditioned.
We pick up problems like loudspeaker drive units wired
out-of-phase by accident, digital filters that roll-off in a
bizarre fashion due to design errors, a transmission line
loudspeaker with no bass (!), amplifiers with excessive d.c.
offsets, excessive jitter and all manner of other funnies.

Manufacturers published data is then checked against
our measurements. There is usually little problem here.

The reviewer is then given the results. This gives
useful guidance on what to watch out for in listening tests.
For example, if three CD players use the same chip set
they may well sound much alike in their basic attributes, if
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Hi-Fi World uses a range of test equipment from
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<td>B.W.1</td>
<td>£595</td>
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WIN ONE OF THREE PAIRS OF SUPERB AAD C-550 FLOORSTANDING LOUDSPEAKERS IN THIS MONTH’S GREAT GIVEAWAY!

This month, Hi-Fi World has no less than three pairs of AAD’s superb C-550 floorstanding loudspeakers to give away! Yes, that’s right, three lucky readers will be getting an early Christmas present - the chance to hear how great these things sound, which is exceptional for the asking price of £500 per pair! In September’s Hi-Fi World, here’s what Channa Vithana had to say:

“AAD (American Acoustic Development) may not be a household name here in the UK, but when you consider its founder and loudspeaker designer Phil Jones is behind it, then things start to get interesting. Phil Jones is probably most famous for designing the legendary AE1 mini monitor loudspeaker by Acoustic Energy. In 1998, he founded AAD which is based in St. Louis, Missouri. AAD design, test and manufacture all their cabinets and drive units in-house. For more information, see www.aadsound.com. The compact C-550 floorstanding model for review here is described as a 2.5 way design and comes in Cherry, Black or Maple vinyl finishes. Build is excellent as was the flawless panel fit and material finish. Dimensions are 940x222x282mm and weight 18.5kg.

These loudspeakers have a distinct, and I think quite specialised, musical ability... It’s this composure and coquettishness, allied to a powerful bass reproduction (as you might expect, considering who the designer is), and clear insight into instrumental and/or vocal quality which characterises them. Essentially then, they’re like a pair of down-scaled studio monitors – they’ll appeal to listeners who are highly critical of details, yet don’t want to spend vast sums of money. Everything was tightly ordered and reproduced – from the individual instruments to the overall recorded acoustic. Instrumental separation was very good, and the timbre of each instrument excellent, because there was finely detailed definition to du Pré’s cello playing and the surrounding layering of the violins. Dynamic crescendos were handled with consummate control. Properly fettled however, you get an extremely couth and composed sound at the price; this is what will win the C-550s many friends. An audition is essential – these extremely accomplished loudspeakers are well worth a listen.”

If you’d like to own one of the three pairs of AAD C-550s we have on offer, all you have to do is answer the following four easy questions. Send your entries by 29th September 2006 on a postcard to: October 2006 Competition, Hi-Fi World magazine, Unit G4, Argo House, The Park Business Centre, Kilburn Park Road, London NW6 5LF.

QUESTIONS
[1] AAD WAS FOUNDED BY WHOM?
[a] Phil Jones
[b] Phil Collins
[c] Phil Silvers
[d] Prince Philip

[2] AAD STANDS FOR WHAT?
[a] American Acoustic Development
[b] Audio Acoustic Design
[c] Actually Awesome Dude
[d] Any Apples, Dear?

[3] WHEREABOUTS IS AAD BASED?
[a] St. Louis, Missouri
[b] Lewes, East Sussex
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[d] London, England

[a] studio monitors
[b] horn loudspeakers
[c] electrostatics
[d] subwoofers

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<td>Life &amp; Works of A.D. Blumlein by R.C. Alexander</td>
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<td>Understand Amplifiers by Owen Bishop</td>
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<td>Gold plated, teflon insulated phono sockets - pack of 2</td>
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<td>Silver plated speaker terminals pack of 2</td>
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<td>chassis insulated - Red/Bk</td>
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<td>Chassis mount earth post</td>
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<td>Stereo carbon track</td>
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<td>100k dual log pot.</td>
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<td>Cermet 'Humbucker' 2W at 70 C 22R or 100R linear pot.</td>
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PRINTED CIRCUIT BOARDS

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<td>Pre II preamplifier</td>
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POWER SUPPLY PARTS

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<td>UF5408 700V 3A rectifier diode ultra-fast recovery</td>
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<td>Cree CSD4060A rectifier diode Schottky 600V 4A</td>
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<td>Jensen 4700uF 16v DC 4 terminal electrolytic</td>
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<td>RIFA 100uF 100V DC Axial Al Electrolytic</td>
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<td>Polyester 0.1uF 630v DC Metalised film</td>
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<td>Panasonic 220uF 500V DC Low ESR Al electrolytic</td>
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<td>Bridge Rectifier 25A 700V 28.5mm x 7.5mm</td>
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Book List

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<tr>
<td>Valve &amp; Transistor Audio Amps by John Linsley Hood</td>
<td>£24.50</td>
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<tr>
<td>Self on Audio by Douglas Self</td>
<td>£26.50</td>
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We stock a wide range of parts to facilitate the build of valve amplifiers. Please ring or e-mail for details. See our on-line catalogue at www.world-designs.co.uk Tel: 01832 293320
WANTED: SHARP GF-555
Four band Stereo radio cassette recorder 1980's Double cassette decks offering £500.00 see conditions. Also Sharp RP 114 Vertical playing Linear track- ing turntable. Offering £300.00 see conditions. Both must be in almost Mint/Excellent condition with no signs of wear/damage no scratches or cracks on plastic no missing parts and Fully Op- erational. E-mail fiskallen@aol.com or Telephone early evening: 01865 378 578. (Oct)

LEGENDARY CROWN
DC300A power amplifier in superb condition, recently serviced AB+B output configura- tion. Freq Response DC - 20kHz. 2 x 300 watts into 4 ohms. 2 x 150 watts into 8 ohms. drive into any load. £495. Asking £295. Tel: 07720 886 195 (evenings) (Nov)

TEAC A-7300 Direct drive capstan I.C. logic control reel to reel + sparse tape, £300. Nakamichi 1000 cassette £900. Audio Synthesis Dax Decade 2, remote control. £750. Tel: 01189 760 756 (Nov)


WANTED: MISSION 770 loudspeakers, 1978+ vintage. Tel: 01843 843 145 (Oct)

MONITOR AUDIO MD852
speakers, teak, immaculate, £70. Heybrook HB1 speakers, walnut, good condition. £45. Tel: Mike 07843 656 788 or 02920 531 304 (South Wales) (Oct)

KEF SPEAKERS Reference Four, new tweeters, black finish. One. Excellent condition. No boxes though! Need to hear but in North East Scotland. Offers around £1700. Tel: 01242 483 642 (evenings) (Oct)

MISSION 728 floorstanding speakers, rosewood, as new condition. Five star reviews. £395. Leach Audio Black Cube. All in excellent condition. For full details telephone 07779 142 961 or Email: mykyte@netbreeze.co.uk.

B&W NAUTILUS 802, 3 way floorstanding cherry speakers, Cyrus APA7 mono's + ACA7 + PSXr. Pioneer F504 DRS. Primare 30.2 CD, Rega Planar 25 with cartridge DV20X. £1195. Bryston BP25 power amplifier, 552 pre amplifier, Shinhan Hawk speak- ers. All as new. £25,000. Will split. Tel: 020 8524 2181 (Oct)

B&V NAUTIUS 802.3 way floorstanding cherry speakers, Cyrus APA7 mono's + ACA7 + PSXr. Pioneer F504 DRS, Primare 30.2 CD, Rega Planar 25 with cartridge DV20X. Lehan Audio Black Cube. All in excellent condition. For full details telephone 07779 142 961 or Email: mykyte@netbreeze.co.uk.

WANTED: BANG & Olufsen U70 stereo headphones. Must be in excellent/mint condition. Of- fering £180. Email: fiskallen@aol.com or telephone evenings 5pm - 9pm 01865 378 578 (Oxford) (Nov)

FOR SALE: Top of the range unwanted competition prize. Opus four zone multi room audio system. Retail £4200. Wanted £2000 ono. Tel: 0121 454 1893 or mobile 07791 749 921 (Birmingham) (Oct)

NAIM NAT-101, serviced, upgraded Naim £850 (39211). Krell KSL £750. Exposure XVIII £450. Nakamichi LX5, slight external damage. Offers. Original boxes. Meridian 500, £450. 566, £400. Remote control £75. Tel: 01243 870 666 or Email: pathfinder@yahoo.co.uk (Oct)

KLIPSCH HERESY I1 speakers in walnut, 14 years old, vgc. £495 or £565 with matching stands. Also pair Quad ESL57 bronze c/w tilt-able custom stands £350. Tel: 07788 520 242 (Leeds) (Oct)

LINN IKeMi £950, Trivista 21 DAC £750, Talk Electronics Hurricane/Whirlwind pre with Tornado monoblocks £750, all good, prefer to demonstrate. Reason for sale; have gone all valve. Tel: Chris 01277 274005 (Kent) or E-Mail chris.iredale@btinternet.com (Nov)

MICHELL ORBE, Michell Iso phono stage. £ME. Cost £4000. Accept £1500. Theta Chroma DAC, cost £800, accept £250. All excellent. 300 Vins, all catagories. Tel: Mike 020 7722 3748 or 07932 674 810 (London NW3) (Nov)

NEAT ACOUSTICS Ultimatum M9 speakers, special piano black finish, immaculate. £5,750. Tel: 07852 265 721 (Oct)

CLASSIC HI-END HI-Fi. Pioneer PD91 Reference CD Player, re-clocked by Trichord Research. Piano laquer Black with Polished Mahogany end cheeks. Exempla- ry condition, Instructions, Boxed £4900.00 ono. Asembleage DAC 3, VGC, Vaish Caps, Black. £290.00 ono. Tanny Chroma DAC, cost £800, accept £250. All excellent. 300 Vins, all catagories. Tel: Mike 020 7722 3748 or 07932 674 810 (London NW3) (Nov)

FOR SALE: Rega Planet CD Player (Original style), plus Solar remote control. £130. Rauck Acoustics Epilogue Speakers (original speakers) and metallic stands £85. Contact Mark, E-mail MarkPtalk@aol.com. Buyer collect- s, Hastings,East Sussex area. (Nov)

DIY Speaker Parts - Drive Units, Crossover Components, Floor Spikes

We have selected SEAS Drive Units for their natural sounding performance and smooth response allowing simple crossovers to be used. Below is a selection of drive units from the complete SEAS range that we hold in stock. Ring us to enquire about drive units not shown here.

**SEAS A26RE4** £71.98
25cm (10") Paper Cone Bass unit as used in the WD25 Speaker kits

**SEAS CA22RNX** £83.79
22cm (8") Paper Cone Bass unit

**SEAS CA18RLY** £51.11
18cm (7") Paper Cone Bass unit

**SEAS CA15RLY** £53.52
15cm (5.75") Paper Cone Bass unit

**SEAS 29TFF/W** £38.34
29mm soft dome treble unit used in the WD25 STD speaker kits

**SEAS CA18LY** £51.11
18cm (7") Paper Cone Bass unit

**SEAS CA15LY** £53.52
15cm (5.75") Paper Cone Bass unit

**SONIQS Polypropylene Caps**
SONIQS capacitors are formed from high voltage polypropylene film and hand soldered using silver solder to copper leads. Construction and resin encapsulation has been formulated for optimum acoustic and electrical performance.

- **PXX 1.0uF 250V** £1.13
- **PXX 1.5uF 250V** £1.28
- **PXX 2.2uF 250V** £1.41
- **PXX 3.3uF 250V** £1.70
- **PXX 4.7uF 250V** £2.06
- **PXX 5.6uF 250V** £2.35
- **PXX 6.8uF 250V** £2.66
- **PXX 8.2uF 250V** £2.90
- **PXX 10uF 250V** £3.18
- **PXX 12uF 250V** £3.74
- **PXX 15uF 250V** £5.03
- **PXX 18uF 250V** £6.03

- **SAX 1.0uF 630V** £2.40
- **SAX 1.5uF 630V** £2.81
- **SAX 2.2uF 630V** £3.17
- **SAX 3.3uF 630V** £4.19
- **SAX 4.7uF 630V** £4.49
- **SAX 5.6uF 630V** £5.28
- **SAX 6.8uF 630V** £6.16
- **SAX 8.2uF 630V** £6.93

**SONIQS Ferrite Inductors**
SONIQS coils are wound on high density 12.5mm dia. ferrite cores for high power handling and dynamic range. High purity copper 0.71mm wire heat bonded to reduce vibrational effects. Tolerance 5%. State value required when ordering.

- **25mm core 0.33 - 0.6mH** £2.47
- **50mm core 0.6 - 1.0mH** £3.49
- **50mm core 1.1 - 2.5mH** £3.98

**SONIQS Air-Core Inductors**
SONIQS air core coils utilise 0.56mm dia high purity copper wire on a rectangular bobbin that allows vertical and horizontal orientation to minimise coupling effects. Tolerance 5%. State value required when ordering.

- **Air-core coil 0.18 - 0.5mH** £1.99

**Vitreous Enamel Power Resistors**
High Power resistors encapsulated in Vitreous Enamel to minimise vibrational effects. Tolerance 5%. State value when ordering.

- **3W 0.68 - 100 Ohms** £0.99
- **7W 1.0 - 100 Ohms** £1.47

**SONIQS TP1 panel** £3.60
Bi-wireable terminal panel with gold plated connections allowing spade, bare wire and 4mm plugs. Plain Tufnol CCB circuit board also available to fit PCB slot at rear to allow component hard wiring.

**SONIQS CCB board** £1.49
CLASSIFIEDS

When a classic goes `poor your troubles have just started, but there may be a good ending. Replacing failing parts can improve the sound, so here is a short listing of all those companies who specialise in getting a classic up and running again after it deposited a small ring of soot on your ceiling!

CLASSIC CONTACTS

Silence... as a DJ's mind goes blank.

E.J. Joyce (DJ): 020 8946 4120

KEVIN'S CARTRIDGE SERVICE

Hi-Fi and AV interconnects

Hi-Fi VALVES

Hi-Fi World Classic Classifieds

CLASSIFIEDS

VINYL LP's Wanted. Folk, Rock, Jazz, Blues, Reggae, Soul, Classical. Must be in excellent condition. See website for more information. 

VINYL LP's Wanted. Folk, Rock, Jazz, Blues, Reggae, Soul, Classical. Must be in excellent condition. See website for more information. 


HFW said 'Results way beyond those expected at the price'...

RARE, DELETED and new vinyl records for sale. Free monthly page catalogue. 1000s of vinyl LPs, EPs & 45s. 99% ex to mint condition - all at fair prices with many bargains! 60's & 70's Rock, Pop, Jazz, Folk, Soundtracks, Blues, Psychedelic & Progressive. Selling vinyl since 1969. Do not miss out. Write or phone: Sugarbush Records (HFWE), 8 Hawkenbury Road, Tunbridge Wells, Kent, TN2 5BJ, UK. 01892 541 746. Or browse website: www.sugarbushrecs.org (Oct)

AMAZING CABLES! DIY or ready made solid silver interconnects, speaker cables and powercords, with world-class connectors. True high end performance at real-world prices. Soole UK agent for VooDoo Cable of Germany - www.voodoocable.com

REVOX (Brian Reeves, Cheshunt) Quality tape recorder spares, service and repairs. Spare parts and service. Tel: 020 8 680 4465

Hi-Fi and AV interconnects

Hi-Fi VALVES

Hi-Fi World Classic Classifieds
NEXT MONTH

THE VINYL CUT:

As the dark nights draw in, what could be better than sitting by the fire, luxuriating in the warm, sumptuous sounds of analogue? November’s Hi-Fi World turntable special issue is a fix for even the most dedicated vinyl junkie, as we celebrate the pleasures of the groove. Here’s just a taste of what we hope to bring you:

- DENON DL-103R CARTRIDGE
- TRIPLANAR ULTIMATE TONEARM
- ORTOFON RONDO BLUE CARTRIDGE
- THE VINYL REVIVAL: FACT OR FICTION?
- CARTRIDGE MAN CONDUCTOR TONEARM
- WEIGHTING HERE: STYLUS BALANCES TESTED

- PHONOSTAGE SUPERTEST:
  GRAHAM SLEE ERA GOLD/ELEVATOR
  ACOUSTIC SIGNATURE TANGO
  CLEARAUDIO SYMPHONO
  LEHMANN BLACK CUBE
  ICON AUDIO PS1 MC
  TRICHORD DINO+

- TURNTABLE PACKAGE GROUP TEST:
  ACOUSTIC SIGNATURE CHALLENGER/RB300
  PROJECT RPM10/PROJECT ARM
  MICHELL GYRODEC/TECNOARM
  CLEARAUDIO SOLUTION [shown]
  VPI SCOUT/JMW 9

plus:
- USHER 718 & MONITOR AUDIO RS8 LOUDSPEAKERS
- MYRYAD MXI2150 INTEGRATED AMPLIFIER
- TANGENT UNO PORTABLE RADIO

PICK UP THE NOVEMBER 2006 ISSUE OF HI-FI WORLD ON SALE SEPTEMBER 29TH, OR SUBSCRIBE AND GET IT DELIVERED TO YOUR DOOR: p74
classified ads order form

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Maximum length per advert is 30 words, each additional word is 50p extra. Telephone numbers and E-mail addresses are treated as one word. Model numbers are treated as one word i.e. Quad 303 = two words. Please tick the box for the advert required.

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Private magazine advert display black box
Trade magazine advert
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Please write or type your advertisement copy in block capitals with one word per box.
Please continue on a separate sheet if necessary.
WE WILL ACCEPT PHOTOCOPIES OF THIS FORM

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Please debit my VISA/MASTERCARD/SWITCH Card No.(Switch card issue No.)__________________________
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Send this form together with your payment in an envelope marked:
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NOVEMBER 2006 - 7TH SEPTEMBER 2006
DECEMBER 2006 - 5TH OCTOBER 2006

www.hi-fiworld.co.uk
"This is the future."

(John Lennon, after hearing the single, 'I Feel Love'.)

The queen of nineteen seventies disco, Donna Summer, cut a momentous album during 1977, produced by the legendary Giorgio Moroder. "We first met Donna in Munich, Germany," said Moroder, "she was stranded there after a musical she was in was cancelled. She was first employed by us as a backing singer. We were impressed and said that, if we ever had a song that we'd like to produce for her, we'd call her."

Summer's first big hit with Moroder was the sexy 'Love To Love You Baby', which according to him contained "fifty seven moans". For the later album, 'I Remember Yesterday', the idea was "to have some songs of the '40s, '50s, some of the '60s, some of the '70s and a song of the future."

The poppy, '40s-derived bouncy beat of the title track was a Top 20 hit in the UK with its light, positive lyric and smiley music. Next, the '50s rock'n'roll track, 'Love's Unkind', the tale of a school girl's unrequited crush, is a girl group stomp - this hit No.3 in the UK charts. 'Back In Love' again is an excellent Motown/Supremes pastiche with appropriate harmonies that rose to the Top 30 in the UK. Next, 'Black Lady' offered a blaxploitation/Shaft approach with an energetic, funky vibe.

For the future track, Moroder went into the studio with a "huge" synthesiser, an unusual thing for him at the time. "I had a guy program the bass line, just three or four notes, which kept a certain time. We recorded it over and over until we had the whole three and a half to four minutes," said Moroder.

Don't forget this was 1977, so using a synthesiser in this manner was still unusual. In fact the engineer thought Moroder crazy to keep the four notes pumping through the track which would eventually become the blockbuster 'I Feel Love'. "The tuning was terrible, however, so, after every four beats, we had to rewind the tape, drop the bass in and out, fiddle with it and, well, it took several hours just to do the bass line."

At that time, Moroder's favourite artists were Tangerine Dream, Kraftwerk and Vangelis - all direct influences on this track. During the mix, Moroder added a little to the bass and then added a delay which gave the track that rolling, signature, throbbing feel. "The vocals for the track took only thirty to sixty minutes, said Moroder. "That was helpful because it retained the spontaneity. Even if there are little mistakes here and there, it didn't matter because the feel was great."

The first time Moroder heard the track outside of the studio was in the famous Studio 54 club in New York. Oddly, he said, the first part of the bass line emerged from the speaker on the left and the second was on the speaker on the right, slightly after it. "I thought, oh no, have I made a mistake in the mix! But, no, if you stood in the middle of the floor the stereo effect was fine. However, I noticed that the people on the right side of the floor danced differently to the people on the left!"

'I Feel Love' stayed at No.1 in the UK for four weeks and was the very first pop hit recorded with a synthesised backing track, which was imitated by dozens of Euro dance imitators. This song, alone, directly influenced the electro revolution of the '80s and the techno revolution of the late '80s-early '90s. Madonna's recent 'Future Lovers' single almost borrowed from the track wholesale.

'I Feel Love had an influence on us," said Blondie's Debbie Harry. "It made us look at these sounds differently. We had played around with synthesisers already in the band but Giorgio was the master. The song gave us a new lease of life or a new license to do other things with synths." Ana Matronic from the Scissor Sisters was impressed by the album too, "Giorgio Moroder is god!" she exclaimed. "The disco and dance music from that time is so influential. I Feel Love, though, to me produced the feeling of falling in love. Hearing it, I have the sense memory or body memory of falling in love with someone."

'I Remember Yesterday' initially appeared on vinyl and then later, of course, on CD. The first issues of both formats are the best of the bunch.
INTRODUCTION
In a world of copycat dealers and counterfeit products, the arrival of an original master is worth celebrating; and hopefully worth the trouble to check out. When you've discovered the short-cuts are cul-de-sacs, make the pilgrimage to Britain's last remaining high-end dealership. Still crusading since 1979.

4 Park Circus, Glasgow, G3 6AX, Scotland
0845 4000 400
info@audiosalon.co.uk
www.audiosalon.co.uk

OPERA
Before you buy “an authentic Italian loudspeaker” please enquire where it was made! Opera combines the traditional Italian passion with 21st century maths of designer Mario Bon. The value and performance are outstanding. And they are made in Italy: I watched them being built!! Models stocked: from the £595 Mezza to the £9,995 Tebaldis. Highly recommended combining emotion and accuracy; value and looks.

UNISON RESEARCH
We commend the quality and value of Unison Research amplifiers (we stock models from £950 to £32,950!). From the astonishing 845 Absolute, the chief designer Prof Sacchetti has derived a series of wallet-friendly integrated valve amps: the £5500 Performance; the £2950 Sinfonia and now the £1795 Preludio. Hard to believe, but makes Chinese products overpriced (even the Chinese amps with British or American badges!)

LYRA
The SKALA phono cartridge is £1,895. Now any new model from LYRA creates headlines in the world of analogue, but the SKALA is the fifth generation of new technology which defines the future of what is now the greatest phono cartridge designer on Planet Earth. To offer this performance for less than £2,000 is Heaven on Earth!!

ESOTERIC
TEAC decided to keep UK customers waiting for the special edition X-03se at no extra price for the stiffened power supply and other refinements. It has been worth the wait. This is a combination of VRDS precision engineering and painstaking audiophile refinement. At £4,995 it has to be the high-end bargain of the decade.

JPSLABS
The next decade’s cables available now! SuperConductor brought JPS to the attention of the world’s audiophiles almost 20 years ago. Now the third generation SuperConductor is launched: interconnects and loudspeaker cables which definitely deliver performance audibly ahead of anything you have heard. Thanks to JPS policy of minimal marketing, the price of a metre pair is £795 and £349 for the “junior” version. Home loan/approval is available.

PATHOS
And then there comes along the long-awaited Italian CD player and it gives you the goose bumps. Comparisons with Alfa Romeos and Ferraris convey the excitement that a product of passion, stimulating and absolutely sensational. Do not waste £4,500 on ... What you were about to buy!!

for those who don’t believe in compromise
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